

THE ³
COMMAND AND GENERAL STAFF SCHOOL
QUARTERLY ⁶⁸⁶⁶⁸⁸
^{War}
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THE
COMMAND AND GENERAL STAFF SCHOOL
QUARTERLY

REVIEW OF MILITARY LITERATURE

LIEUTENANT COLONEL P.R. DAVISON, *Editor*
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FOREWORD

The object of this publication is a systematic review of current military literature, through cataloging articles of professional value, in selected military and naval periodicals, in the domestic and foreign field.

Articles from foreign periodicals are treated by translations of titles and digests of contents; material of particular importance is covered more extensively in a section of "Abstracts of Foreign-language Articles."

A "Library Bulletin" Section lists books, recently accessioned, which are of particular significance.

This Quarterly is published as a guide to modern military tendencies and to inspire vigorous thought on the subjects treated.

The opinions expressed by authors are not necessarily official.

March, 1938

First Quarter

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HAVE YOU READ?

- GREAT CONTEMPORARIES. By Winston S. Churchill
THE CAISSONS ROLL. By Hanson W. Baldwin
ITALY AGAINST THE WORLD. By George Martelli
THE FAR EAST COMES NEARER. By Hessel Tiltman
AIR DEFENCE AND THE CIVIL POPULATION. By H.M. Hyde, and G.R.F. Nuttall
I KNEW HITLER. By Kurt G.W. Ludecke
BACKGROUND OF WAR. By the Editors of *Fortune*
GENERAL CHIANG KAI-SHEK. By General and Madame Chiang Kai-shek
POPULATION PRESSURE AND ECONOMIC LIFE IN JAPAN. By Ryoichi Ishii
ONE HUNDRED AND SEVENTY-FIVE BATTLES, BY LAND, SEA AND AIR. By Roger Shaw
THE NEXT WAR. By Air Commodore L.E.O. Charlton
THE WAR IN ABYSSINIA. (Translation) By Pietro Badoglio
MILITARY HISTORY OF THE WORLD WAR. By Colonel Girard L. McEntee
THE KAISER ON TRIAL. By George S. Viereck
PLOT AND COUNTERPLOT IN CENTRAL EUROPE. By M.W. Fodor
RED STAR OVER CHINA. By Edgar Snow
GERMANY: THE LAST FOUR YEARS. By "Germanicus"
AMERICA IN THE WORLD WAR. By Samuel T. Moore
AT THE PARIS PEACE CONFERENCE. By James T. Shotwell
WEST POINT TODAY. By Kendall Banning

Brief reviews of the books listed here may be found on page 137 following.

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Captain H.N. Hartness: *Die Kraftshrkampftruppe* (July, August, October 1937)

Captain W.G. Johnson: *Bulletin Belge des Sciences Militaires* (July, August, September 1937)

Major B.R. Legge: *Revue d'Artillerie* (July, August, September 1937)

Major T.R. Phillips: *Revue Militaire Suisse* (July, August, September 1937)

Major R.G. Tindall: *Revue d'Infanterie* (July, August, September 1937);
Revue Militaire Générale (July, August, September 1937)

Major L.K. Truscott, Jr.: *Revue de Cavalerie* (July-August, September-October 1937).

Lieut. Colonel L.K. Underhill: *Krasnaya Zvezda* (14 November 1937).

CAVALRY AT LODZ

By

Lieutenant Colonel Paul R. Davison, Cavalry

History is far from being filled with usable historical examples of the employment of a cavalry force, approximately the size of an American cavalry division. However, there is one among the few which holds interest and teaches lessons. In that headlong, intricate and entangled penetration of the German Ninth Army in the endeavor to capture Lodz we do find a large body of cavalry, about equal in strength to an American cavalry division, performing practically all of the offensive and covering missions which could be given it. When that German penetration lost its momentum and hit the Russian stone wall it did not have the power to push further, due to over elongation and a very thin trailing line of communications. When this force was smacked in the face by the backspring of the more numerous Russians, the German cavalry valiantly swung from the offensive to the defensive. That defensive action of the German I Cavalry Corps in the vicinity of Lodz is what we are primarily interested in at this time. While critically following this defensive cavalry action it must be borne in mind that it was cavalry. Said cavalry hoping soon to be relieved and not infantry in a position, entrenched, wired, machine-gun banded and supported, holding until death takes the last musketeer.

There are many things cavalry is able to do and will do on defensive assignments. It will not be out of place to here mention a few of the more important.

Cavalry on a purely defensive mission will invariably employ delaying action if allowed a choice.

Delaying action is that class of defense by which a commander endeavors to check a hostile advance or attack, and thus gain time. The delaying force avoids decisive combat. It usually withdraws before suffering serious losses unless its mission requires more determined resistance. The maximum amount of time is gained by forcing the enemy to reconnoiter, maneuver



MARSHAL VON HINDENBURG IN 1914

and deploy. In accomplishing its mission of delay, a command endeavors to prevent the enemy from driving home his attack.



MARSHAL VON MACKENSEN IN 1914

Cavalry is well suited for delaying action. Its mobility and fire-power enable it to employ a variety of methods to accomplish delay. It reconnoiters offensively to the front and flanks, thereby maintaining contact with the enemy; it blocks his path or it strikes his flanks (or a combination of these two methods of delay); it occupies successive positions and employs long range fire, thereby causing early and frequent hostile deployments.

The deployment is made in groups with comparatively wide and varying intervals, so disposed as to take advantage of the terrain with due regard to mutual fire support.

Except when a stubborn and protracted resistance is planned, in which case the led horses are held immobile well to the rear and the defense approximates that of infantry, the occupation of a position by cavalry is in relatively greater width and less depth than is the case of an infantry force of the same size.



GENERAL VON SCHEFFER-BOADEL IN 1914

In cavalry defensive actions, all machine guns are placed in position to support the defense. They are distributed in depth if a determined resistance is contemplated. When a determined resistance is not contemplated, the bulk of the machine-



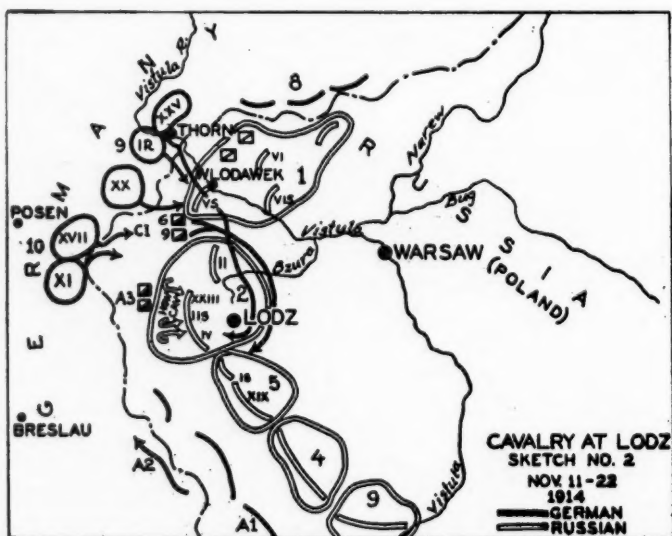
SKETCH No. 1

gun strength is placed well forward so as to permit the maximum fire effect at the opening of the engagement.

It is here suggested that you take a good long look at Sketch No. 1.

The scene was laid in Russian Poland. The time was November, 1914. Germany and Russia were fighting a part of the Great World War. Germany had been successful up near the Baltic Sea, but was forced to retreat from near Warsaw.

On 1 November 1914, Marchal von Hindenburg was made Commander in Chief of the German forces on the Russian front, and was given the mission of protecting Silesia which was then threatened by Grand Duke Nicholas' pursuit.



SKETCH NO. 2

Von Hindenburg estimated that the Austrian offensive spirit was nearly spent, that the situation was serious, and that he must rely alone on German troops. Consequently, he asked for, and received, reinforcements to the extent of a new army corps, all available trained reserves from Germany and the I Cavalry Corps, commanded by von Richthofen. Practically all of those reinforcements were grudgingly pared from the very busy troops engaged on the French Western Front.

Learning that the right flank of the main Russian force protecting Warsaw was not well covered, von Hindenburg planned to envelop the right flank of that force with the Eighth Army under Otto von Below.

For the battle, von Below's Eighth Army rapidly concentrated at Thorn and on 15 November, delivered a surprise attack against the Russian right. The attack failed to envelop the Russian flank but it forced the Grand Duke to withdraw his extreme right back to the Bzoura River where it was covered by the Vistula.

The Ninth Army, under General Mackensen, attacked, 18 November, on the right of the Eighth Army. The Russian line held, but retreated to conform to the new line on the right.

Von Woyrsch, with an army detachment, provisionally called the Tenth Army, attacked, 20 November, toward Lodz. The attack forced the Russian line back. The right wing of the Russian army, by 21 November, was engaged in a terrific battle. The Grand Duke was greatly embarrassed by lack of roads and railroads in getting reinforcements to the line, but succeeded in bringing forward enough to hold the line.

Since Marshal von Hindenburg was not making headway against the Grand Duke, he ordered General Mackensen to penetrate the center of the Russian right with his Ninth Army. The attack was successful. General Mackensen pushed two army corps through the gap to exploit the penetration.

The organization of the German infantry at the beginning of the World War is so well known to the military student that valuable time will not be taken in this discussion to dig up and view the remains. However, the organization of cavalry units the size of a division was a new toy in those hectic days. Therefore, we will take a look at their general composition.

CHART No. 1

ORGANIZATION OF THE GERMAN I CAVALRY CORPS
(ACTUAL STRENGTH, 4,000)

Corps Commander—Lt. Gen. von Richthofen			
9th Cavalry Division Major General von Eberhard Schmettow			
19th Brigade	14th Brigade	13th Brigade	
19th Dragoon Regiment 13th Uhlan Regiment	11th Hussar Regiment 5th Uhlan Regiment	4th Cuirassier Regiment 8th Hussar Regiment	
Signal Detachment	Pioneer Detachment	Battalion 10th Horse Artillery	7th Machine-Gun Company
Heavy Radio Section Light Radio Sections		3 Batteries 4-77 guns per Btry	6 Machine guns (heavy)


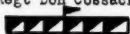
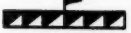
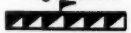



6th Cavalry Division Lt. General von Egon Schmettow			
45th Brigade	33d Brigade	28th Brigade	
13th Hussar Regiment 13th Jäger Regiment— zu Pferde	9th Dragoon Regiment 13th Dragoon Regiment	20th Dragoon Regiment 21st Dragoon Regiment	
Signal Detachment	Pioneer Detachment	Battalion 8th Horse Artillery	6th Machine Gun Company
Heavy Section Light Sections		3 Batteries 4-77 guns per Btry	6 Machine guns (heavy)

NOTE: Arms: Carbine, lance, pistol, saber.

Each cavalry division normally had a battalion of infantry attached.

The German 6th Cavalry Division as detailed by Chart No. 1 is typical. It is a grouping of brigades which in turn are made up of various regiments of heavy, medium or light cavalry, whichever were most available at the time of organization. There were attached to each cavalry division certain vital supporting arms and services.

CHART No. 2

Brig		Brig	
Regt Hussars  Regt Don Cossacks 		Regt Guard Dragoons  Regt Uhlans 	
Mtd MG Det (8 machine guns) 	Mtd Pioneer Det 	Field Artillery Bn (horse) (12 guns) 	

Russian cavalry divisions, as may be noted by reference to Chart No. 2, were not much different in strength and makeup from German ones. A primary difference being that there was no infantry battalion or Jäger unit as an integral part of the Russian cavalry division.

Russia had made up her infantry divisions pretty much along the same lines as those preferred by all of the European nations. Russia did add an innovation by permanently hitching a squadron of Don Cossacks to the foot division.

CHART No. 3

COMPARISON OF GERMAN AND RUSSIAN TROOPS IN THE
WITHDRAWAL OF THE GERMAN XXV CORPS
FROM THE SOUTH OF LODZ

	German		Russian	
	Cavalry	Infantry	Cavalry	Infantry
Corps.....	1	1	1	3
Divisions.....	2	3½	2	9
Brigades.....	6	7	4	18
Regiments.....	12	14	8	36
Strength.....	4,000	8,000	4,400	12,000
Artillery.....	24	?	24	?
Machine Guns.....	12	?	16	?
Rifles.....		8,000		12,000
Carbines.....	3,600	0	4,000	0
Pistols.....	4,000	0	4,400	0
Sabres.....	4,000	0	4,400	0
Lances.....	3,600	0	4,000	0

The signal communications in each cavalry division consisted of one horse-drawn station (190-mile range) and several small (20-mile) stations.



GRAND DUKE NICHOLAS IN 1917

It is fairly easy to figure accurately the units and strength of the German forces in and about Lodz. A glance at the comparative Chart No. 3 will give that information. There is so much difference of opinion as to how many and what units

the Russians used to stop and oust the Germans that only an incomplete and not vouched for listing can be given. As you will see later some of the Russian corps were fighting in the front yard and in the back yard at the same time. One certain and important fact is evident that Russia was superior in numbers to Germany in this affair. All units of both belligerents were far below normal strength.



RUSSIAN CAVALRY AND INFANTRY IN 1914 "THREE MEN TO A HORSE".

It is quite timely here to look into the item of signal communications. Splendid means were available and perniciously active between the Kaiser and Hindenburg at Hohensalza and from the Czar to Nicholas who had a temporary abode somewhere around Warsaw. From Hindenburg to his shock troops there was radio and telegraph, both of which worked at times. Nicholas had a few airplanes, a flock of motor cars, and little radio and a little less telegraph with which to run his part of the show.

The signal troops of the German Ninth Army and its major units at this time (November 1914) differed in organization and equipment from that of the signal troops of the German armies in later years of the War and in general consisted of the following:

Ninth Army:

- 1 Army telegraph detachment
- 1 Army telephone detachment
- 1 wireless command which had under its orders the radio stations of the Army and the stations assigned to Army Corps and cavalry divisions. The Army radio equipment was horse-drawn and had a range of approximately 190 miles.

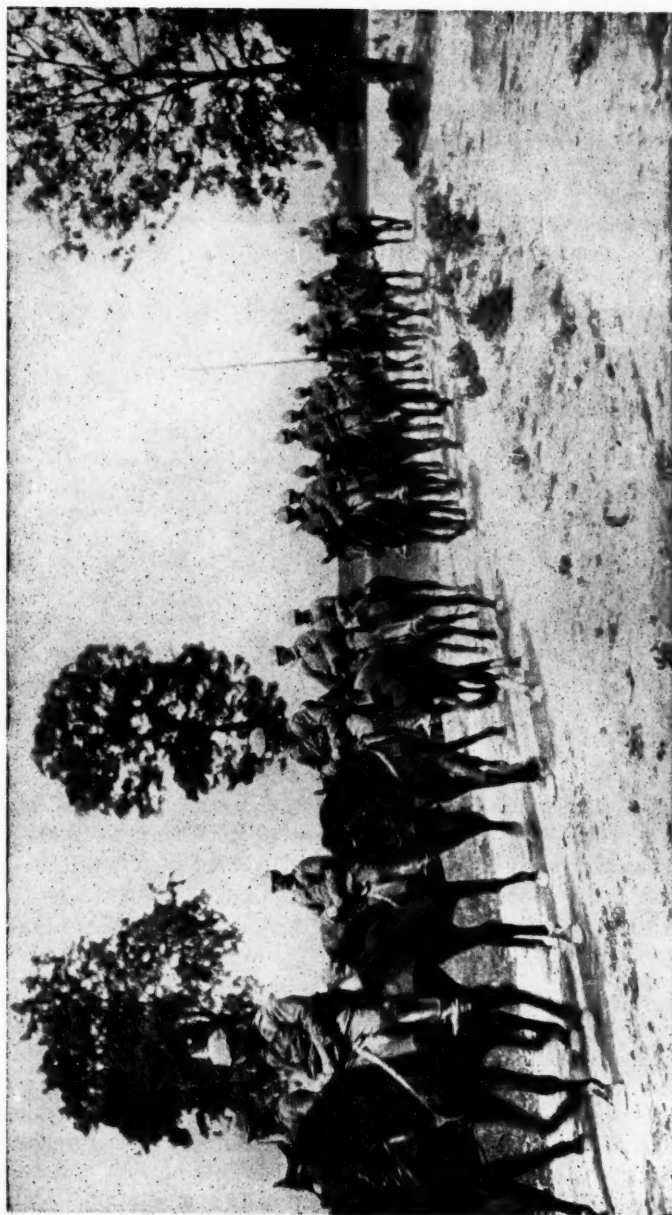
In each Corps:

- 1 telephone detachment
- 1 wireless detachment including two horse-drawn stations of about 62 miles range each.

In each Cavalry Division:

- 1 wireless detachment including one horse-drawn station of approximately 190 miles range (similar to the Army equipment) and several smaller stations believed to be of about 20 miles range.

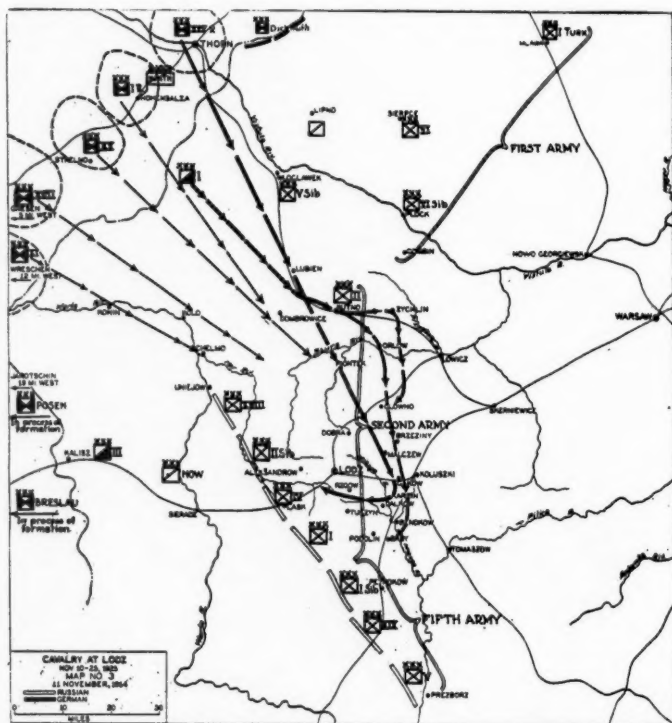
It appears that at this time (1914) there were no signal troops organically a part of the infantry or cavalry divisions (the corps signal detachments were not broken up and assigned to divisions until 1915). Each infantry and cavalry division had a portion of their own personnel trained as messengers, lamp and flag signallers. The radio equipment listed above seems to have been all damped wave equipment, the heavier



GERMAN CAVALRY ON THE EASTERN FRONT IN 1914

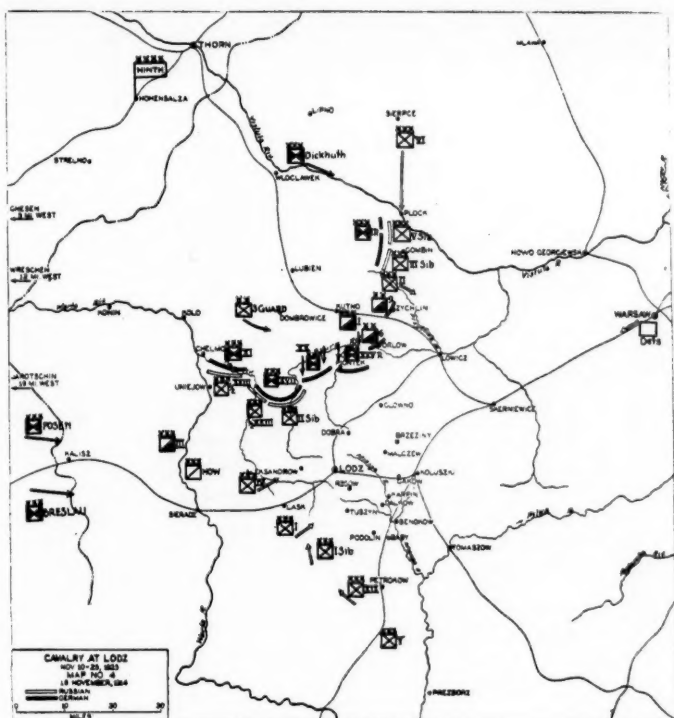
sets being of the two element Telefunken type similar to the wagon sets purchased from Germany for our own signal corps in 1911.

Russian divisions had some radio, some cyclists, some field telegraph troops, but reliance was mainly on mounted messengers.



SKETCH No. 3

Follow the progress of the German XXV Corps and the I Cavalry Corps on the sketches numbered 3, 4 and 5. Note how the XXV Corps and its attached units raced southeast as direct as the crow flies and when Lodz was on the right and abreast it cut sharply to the west, winding up with its nose almost in the suburbs of Lodz. Further note how far and detached the XXV Corps was from Thorn, its home station. And

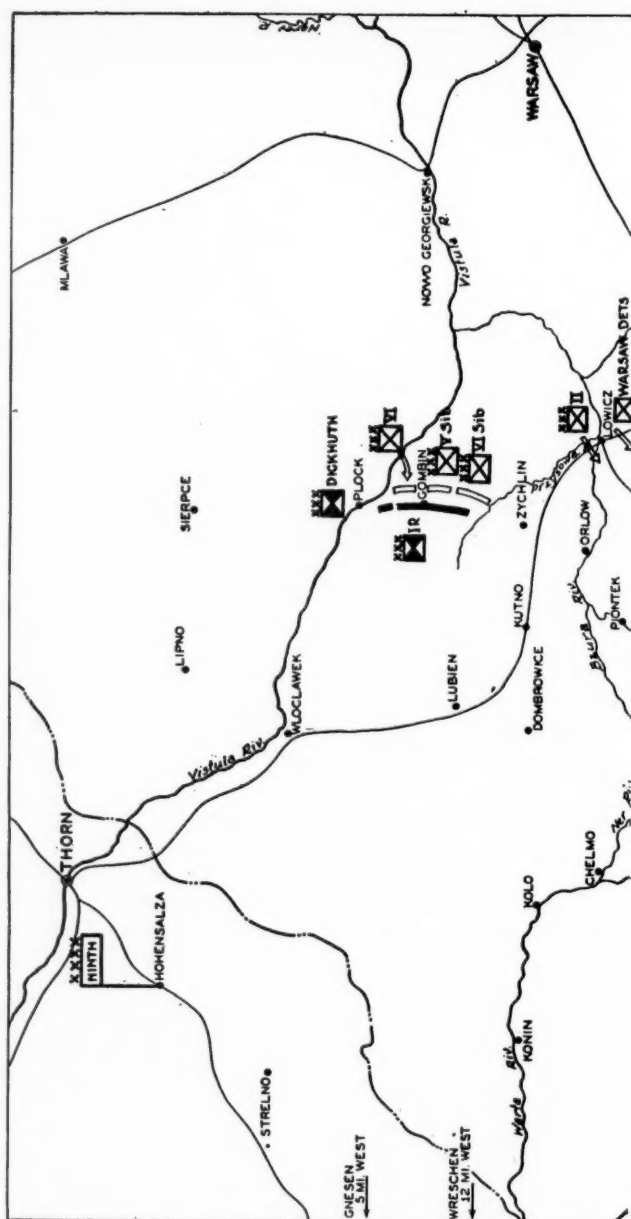


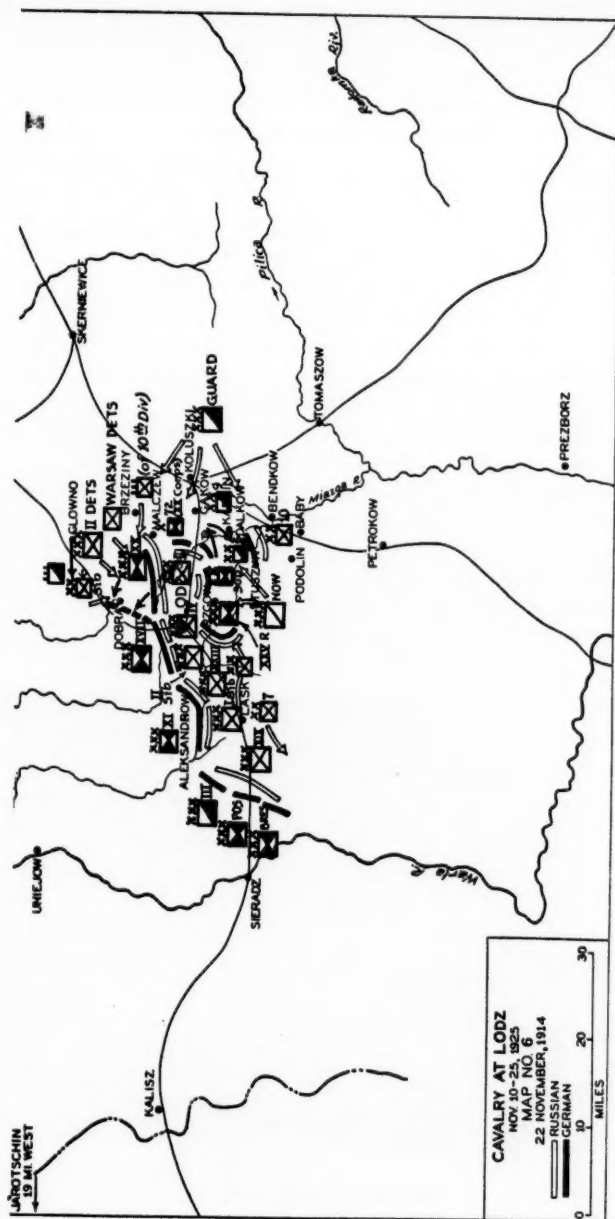
SKETCH No. 4

while you are about the noting business observe how the Russian units west of Lodz side-slipped to the north and east so that they could cut the Germans off in the vicinity of Brzeziny near which place they were able to gain contact with Grand Duke Nicholas' reserves arriving from the east. There were other Russian units not engaged in side-slipping which were available to push from all sides.

On 21 November 1914, the envelopment of Lodz by the Germans had been definitely stopped. The forces comprising the XXV Corps were in an extremely difficult and dangerous position. The corps and attached units consisted of:

The 49th Reserve Division
The 50th Reserve Division
The 3d Guard Division





SKETCH No. 6

The 72d Brigade from the XX Corps, and
The I Cavalry Corps made up of
The 6th Cavalry Division, and
The 9th Cavalry Division (less one brigade left at
Plock east of the Vistula)

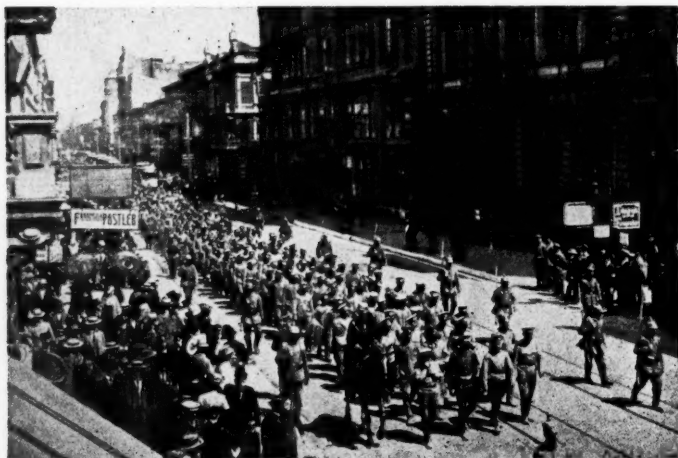
These troops were fighting to the death for the glory of "Old Prussia." Their fronts faced almost any point on the compass. Their backs were to the wall, but, unfortunately, that wall was just another group of Russian warriors.

Since we are not going into the why and wherefore of the command, staff and logistics of that scrap, do not, please, raise the question of how on earth that situation could have existed. It should be accepted as it was, and as written down on the pages of military history, as of 21 November 1914.

If you will use Sketch No. 6 while reading the next three paragraphs they may seem more clear.

On the same date, 21 November 1914, the Germans realized they were stopped, the Russian High Command was determined to effect the capture of the group of forces comprising the German XXV Corps.

To effect the destruction of the XXV Corps the Russian Army closed its forces to the right and rear, west and south of

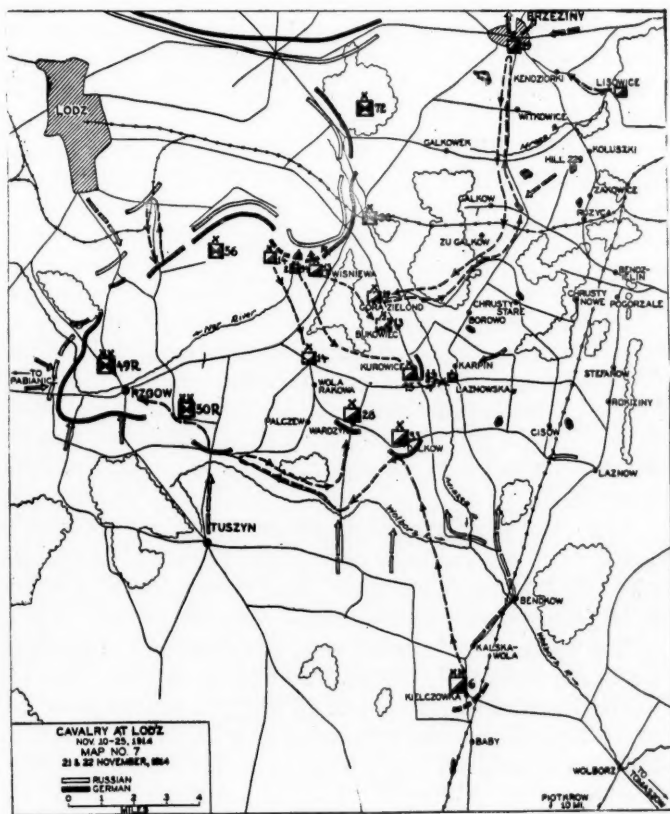


CITY OF LODZ IN 1914

Lodz. The Russian III Corps sent troops north towards Tuszin. Operating on the right of this force was Nowikow's Cavalry Corps. Still farther to the northeast, threatening Koluzki and Karpin was Charpentier's Cavalry Corps, operating on the left flank of the forces advancing from Lowicz and Skerniewice. The latter consisted of five divisions.

The Russian troops from Brzeziny established contact with the defenders of Lodz north of Galkow forest and with elements of the Russian First Army at Lowicz.

Turning our attention to Sketch No. 7, what of the Germans? Ninth Army Headquarters, realizing that the capture



SKETCH No. 7

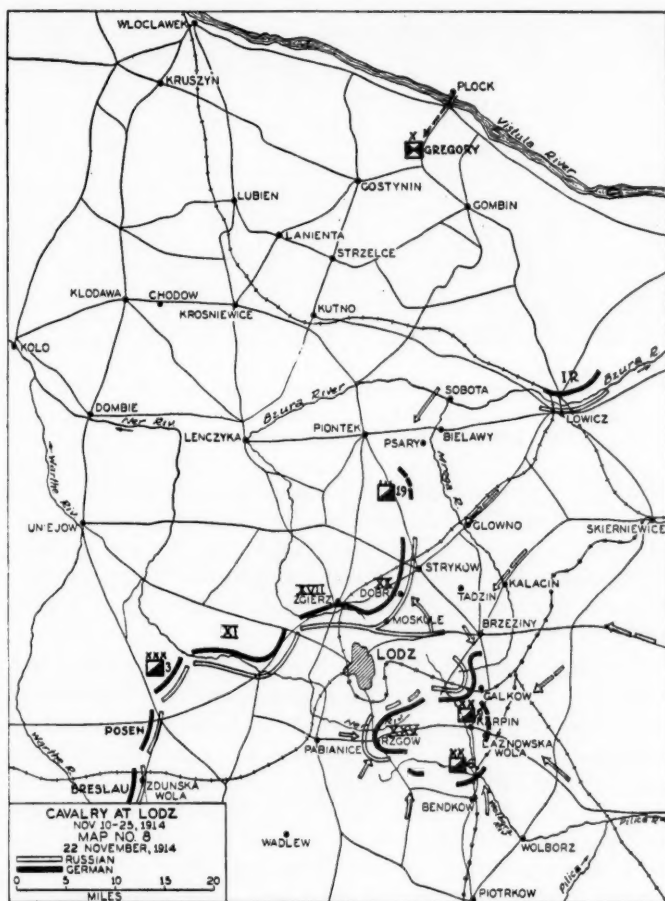
and control of Lodz was utterly impossible, issued orders for the withdrawal at 7:00 PM on 22 November. The XXV Corps was directed to retreat to the east across the Miazga River during the night 22-23 November and turn north in the morning moving on Brzeziny where it would attack, crack apart the Russian troops which had cut them off, and then the whole XXV Corps was to race back to the protection of the old German line. A very simple maneuver to order, but a very difficult mission to accomplish.

On the evening of this day a telegram was received at Hohensalza from His Majesty the Emperor, directing the army commander to "express his thanks to the troops of the Ninth Army for the unshaken bravery shown during these glorious days against a far superior enemy, which was worthy of the highest commendation. The Emperor also sent his Imperial salutation and best wishes for the future." It was a timely telegram—the XXV Corps certainly needed best wishes.

Colonel von Poseck, Chief of Staff of the German I Cavalry Corps, gives an idea of the conditions of the troops at the time the withdrawal order was issued: "Even we cavalrymen were at the end of our strength now. Day and night at the throats of the enemy, in battle, on outpost, on patrol, working as messengers and orderlies, without replacements, without fodder for our animals, generally without billets at night, without sleep—and all this in the frightful cold. The restorative of a victorious advance had kept us going up to this time—now the thought of retreat threatened to let our fatigue master us. In spite of this, though, we had to remain conscious that the retreat of the corps depended on the watchfulness and preparedness of the cavalry."

The I Cavalry Corps was detached from the XXV Corps command and ordered to proceed to the vicinity of Bendkow, destroy the bridge at Wolborz and block the roads leading north from Piotrkow and Wolborz. (See Sketch No. 8)

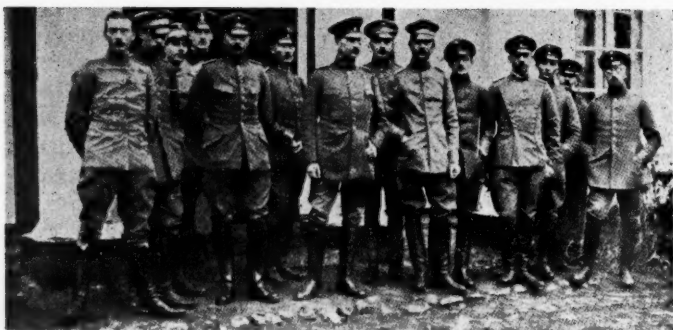
The weather was intensely cold, 10 below zero. The roads were frozen and deeply rutted. To add to the difficulties of withdrawing with no reserve and all troops in contact, was the decision that all wounded numbering over 2,000, and prisoners numbering over 8,000, together with all trains and guns, were to be taken along. There was no food, ammunition was short and the men had been fighting continuously for 36 hours. Major



SKETCH No. 8

von Wullfen, a staff officer, during the battle of Lodz paints a vivid word picture which is worth quoting:

"The bloody-red sunset of the Sunday of death was followed by a continuously increasing frost. A cutting wind swept over the bare gray-yellow ridge of hills which in the dull November light appeared especially desolate. As the night sank over the battlefield and the guns gradually became silent and here and there only a flaring up rifle fire rent the beginning quietness, the firmament arched in a wintery star-brightness over the



LIEUT. GENERAL VON RICHTHOFEN (THIRD FROM LEFT, FRONT LINE)
AND STAFF OF THE GERMAN I CAVALRY CORPS. COLONEL VON
POSECK (SECOND FROM LEFT, FRONT LINE)

landscape. No moonlight and a bone-shivering coldness. After a 36-hour murderous battle everybody was half-starved and benumbed. No warm quarters, nothing to eat and no rest! At 10 degrees below zero the coffee had frozen in the canteens. Whoever had a piece of bread left, tried laboriously to thaw it out in his mouth.

"Hours passed until the withdrawal order reached all the places and until the troops were withdrawn from the combat line. The XXV Reserve Corps did not begin the withdrawal until about 11:00 PM. The responsible leader, General von Scheffer, together with the Commander of the I Cavalry Corps, rode with the advance guard of the 49th Reserve Division. The disengagement from the enemy, who was tired from fighting and paid no attention, proved successful. Had the Russians followed, a catastrophe would have been inevitable. But they slept, slept despite the noise caused by the assembly of our troops with all their trains, columns, transports and prisoners. The snorting of the hungry horses, the clanking and rattles of the wheels on the hard-frozen ground, interrupted the silence of the night . . ."

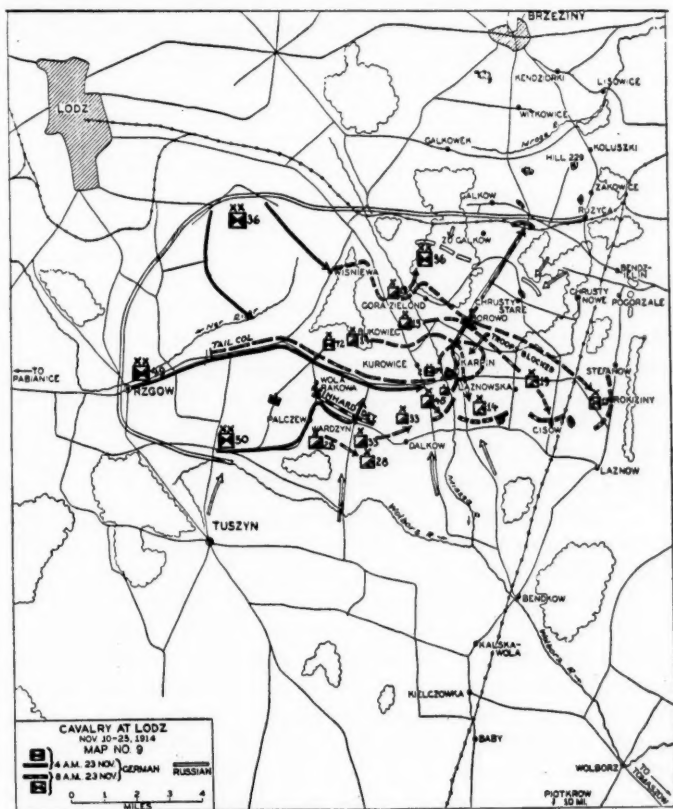
The key to the successful retreat lay in the ability to keep the main crossing of the Miazga River open at Karpin. A company of the Guard Fusilier Regiment supported by the 6th Cavalry Division, was now guarding the bridge and in addition had built another bridge along side of it. (See Sketch No. 9)

There was a little mounted action by small forces (squadrons) in the cavalry combat. Practically all defensive was dismounted using machine-gun and carbine fire. Horses were too underfed and exhausted, marching to and from positions, to be called on for mounted combat.

No entrenching was done. The ground was frozen too hard for even hasty works. Barricades and entanglements of farm machinery and other debris were resorted to.

Led horses were near at hand and mobile at all times.

The 6th Cavalry Division was directed to cover the crossings of the 49th and 50th Reserve Divisions at Karpin from the



SKETCH No. 9

south and west. The 9th Cavalry Division was ordered to clear up the east side of the Miazga River opposite Bukowiec to the east and north. The 50th Division was ordered to march on Laznowska-Wola, cover the east, turn north on Brzeziny and protect the right flank of the Corps.

I CAVALRY CORPS, 22-23 NOVEMBER

Lieutenant General von Richthofen, commanding the I Cavalry Corps, was in Karpin, to supervise the rear protection of the army group by the cavalry corps. To this end the 6th Cavalry Division first arrayed its forces near Palschew, Wardsyn and Kurowice, to provide security to the west and south, and the 9th Cavalry Division on the line: Laznowska Wola—rail-road station at Rokiziny, to the south and east.

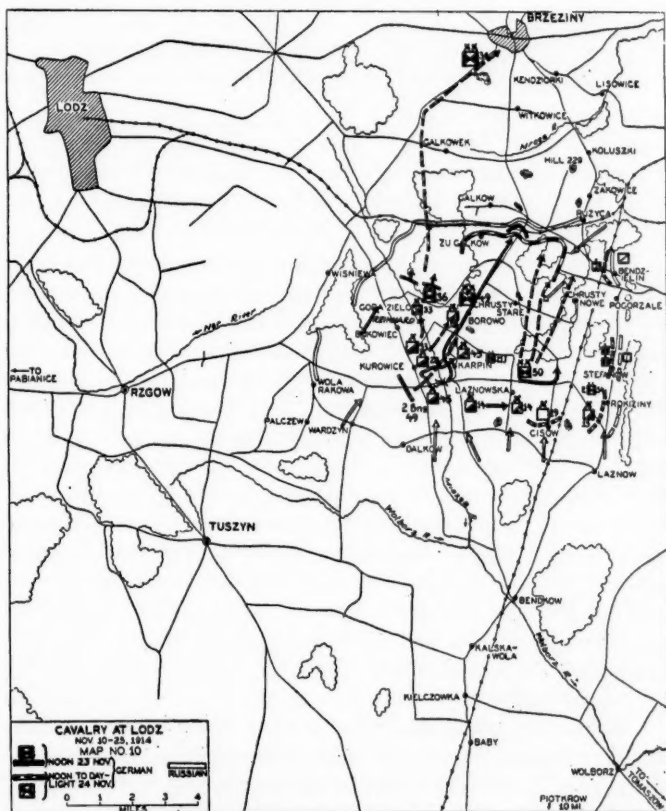
6TH CAVALRY DIVISION, 22-23 NOVEMBER

During the night march (22-23 November) of the XXV Corps, the 6th Cavalry Division at first remained in its position on the line: Palczew—Wardzyn—Kurowice, its front facing south, protecting troops retreating over the main highway. On and after 6:00 AM it was supported by the detachment from the 3d Guard Division (Reinhard) consisting of two battalions of infantry, one battalion of artillery and one squadron of division cavalry. This detachment took position at Wardzyn. At 8:00 AM, 23 November, two battalions of the 72d Brigade of the XX Corps arrived in support. At noon the detachment of the 3d Guard Division and of the 72d Brigade retired to the north and east respectively to join their divisions.

The right flank of the 6th Cavalry Division (Baden 20th Household Dragoons), which had been subjected since 11:00 AM to artillery fire, and threatened by Russian infantry approaching from the west, was refused at Wardzyn. Hereupon the division, on order of the I Cavalry Corps, took up a new defensive position on the heights of Kurowice on both sides of the road, fronting west, and shortly afterwards brought up the two troops of the 20th Dragoons which had been left at Brojce (1 mile north of Wardzyn) as rear guard. Toward evening, Wola Rakowa was set on fire by the shelling of the 1st Horse Battery, and enemy infantry columns advancing therefrom were taken under fire and halted thereby.

The cavalry division followed slowly to Kurowice where it took position with its 45th Brigade south of the highway; 28th and 33d Brigades north of the highway. From the market place at Kurowice the artillery attached to the 45th Brigade fired on the enemy advancing from Wola Rakowa. (See Sketch No. 10)

At 4:30 PM, under protection of the rear guard of the 49th Division (two battalions of infantry), the 6th Cavalry Division began its retirement toward Karpin, heavily shelled all the way. The 28th and 33d Brigades crossed the river and proceeded to the Karpin—Gora—Zielona area in reserve. The 45th Brigade



SKETCH NO. 10

with a battalion of the 21st Reserve Jägers, plus one machine-gun platoon, occupied the west edge of Karpin to the road bend one kilometer to the north.

Under this protection the two battalions of the 49th Division were relieved, and crossing the river, joined their divisions.

At 5:00 PM all German troops had crossed and the cavalry blew up the bridge.

During the remainder of the night the 45th Brigade retained its position at Karpin. The 33d Brigade at Gora Zielona and the 28th Brigade in the south end of Borowo village in reserve. The division was not molested during the night.

Having observed the actions of the 6th Cavalry Division now let us go back a day to check the maneuvers of the 9th Cavalry Division on 22-23 November. (See Sketch No. 9)

The 9th Cavalry Division began the crossing of the Miazga River at Bukowice at 4:00 AM (entirely too late—should have crossed at 8:00 PM). The 11th Hussars charged across the bridge against approaching Cossacks and drove them to the north and occupied a hill one mile north of Gora Zielona. The artillery of the division assisted in the attack.

Upon being relieved by advancing infantry of the 3d Guard Division, the cavalry proceeded south on Laznowska Wola, its march objective. Soon after 8:00 AM the 14th Brigade detachment consisting of the 5th Uhlans, 2d Battalion of the 54th Infantry, one battery of artillery and one machine-gun platoon, moved to the hill south of Karpin. This covering task had been assigned the 50th Division which, halted by the confusion at the Karpin bridge crossing, did not reach Laznowska Wola until 10:00 AM. A Cossack squadron was driven off at 9:00 AM and a battery of Russians which had been firing into the infantry mass at the bridge at Karpin was silenced. The 9th Cavalry Division had by now been reorganized due to the absence of the 19th Dragoon Regiment left at Glowno. The 19th Brigade was made up of the 13th Uhlans and 8th Hussars, the 13th Brigade of the 4th Cuirassiers and the 11th Hussars and one machine-gun platoon.

Since forenoon of 22 November the 14th Cavalry Brigade had occupied hill 222 south of Karpin and positions in the southwest part of Laznowska Wola, facing to the south and southeast. (See Sketch No. 10) From 10:30 AM, on, the 19th Cavalry Brigade was located at Cisow, fronting south, and the 13th



LIEUT. GENERAL EGON VON SCHMETTOW (SECOND FROM LEFT, SEATED)
AND STAFF

Cavalry Brigade at the railroad station at Rokiziny, fronting east.

Although signal communications may have been inadequate during the fight, there is ample evidence of coordination and understanding between the high commanders. The Germans being on interior lines caused a natural crowding of rear establishments which included higher command posts. From German official documents we learn that Major General Count Eberhard von Schmettow, commanding the 9th Cavalry Division, after conferring in Karpin with Lieutenant General von Scheffer-Boyadel, commanding the I Corps, established himself and his command post in the church at Laznowska Wola. Here he was in the midst of the fighting and centrally located in his division.

In the afternoon of 23 November, the 2d Battalion of the 54th Infantry was moved to the railroad station at Rokiziny, which the Russians were shelling heavily. That infantry battalion was to assist the 13th Cavalry Brigade. Either the Russian 5th Cavalry Division or Nowikow's Cavalry Corps had appeared on the scene east and south of Rokiziny.

That last discovered Russian force had apparently come from the vicinity of Bendkow and was gradually feeling its way north on the east side of the railroad line running northeast from Laznow.

Two companies of the German 54th Infantry Battalion moved from Rokiziny to Stefanow and remained there during the night 23-24 November, while Russian cavalry bivouacked in the south edge of the same village.

All during the afternoon, on all fronts, infantry as well as cavalry, severe fighting took place. The cavalry divisions were constantly under artillery fire.

At 3:00 PM, 23 November, one squadron of the 4th Cuirassiers made a reconnaissance to the northeast to locate the two hostile cavalry divisions reported advancing. The squadron advanced to Bendzielin and made a stand. By spreading out on a wide front the commander deceived the Russians as to his real strength and contained the leading Cossack brigade. At the same time, much needed protection was given to the flank of the 50th Division just west of Bendzielin.

In addition to the information shown in the sketches, it is well to consider the actions of the German XXV Corps while the cavalry was performing the covering, defensive, mission.

Upon crossing the Miazga River the corps was to advance north in three columns. The 50th Reserve Division with the 72d Brigade attached via Rokiziny and Chrusty Nowe; the 49th Reserve Division on the main road through Borowo with its left on the Golo—Zielona—Galkow road; the 3d Guard Division through the forest west of Borowo toward Galkow. The objective was Brzeziny.

The advance guard of the 49th Division started off toward the north to push back the Russians and gain room for the remainder of the troops in the vicinity of Karpin. Maneuver space was needed to get straightened out after the confusion resulting from the night withdrawal. The 50th Division rested an hour at Laznowska Wola before turning north. The 3d Guard Division was assembling its scattered units in the forest north of Gora Zielona. While the 50th Division was resting and the 3d Guard Division assembling, the advance guard of the 49th Division became separated at the railroad embankment north of Borowo and was annihilated by the Russians.

The 50th Division advancing in several columns through the woods, fought a desperate battle at Ruzycza which lasted well into the night and defeated a powerful Russian attack coming from the east toward the right flank.

The 3d Guard Division pushed north through the woods south of Galkowek. That division left its artillery behind, made

an all night forced march, and by a surprise attack forced an entry into Brzeziny at 3:00 AM, 4 November. Unquestionably this move saved the whole XXV Corps and the I Cavalry Corps.

General Litzmann, Commanding the 3d Guard Division, leaves record that he realized the desperate situation of the corps. So did everyone else. But he, Litzmann, had an old line trained outfit which made possible a rapid, controlled, forced night march. Record leaves no indication that Litzmann made an effort to communicate his plan to the corps or other division commanders. The Guard Division was thought lost, destroyed or captured by the remainder of the corps until news of its accomplishment leaked through the Russian lines. It is feared that Litzmann's piece of masterly tactics was the result of a wild dash for safety in the direction of home. At any event the maneuver was successful and saved the stranded forces.

At dark, 23 November, the situation as known to the corps commander (Scheffer) was most critical. No advance could be made north of the railroad extending across the front. All contact had been lost with the 3d Guard Division and no one knew where it was. We know it was safe in Brzeziny. The cavalry was being hard pressed to protect from the rear. On all sides the Russians were closing in. It is believed that the long column of 8,000 prisoners who were marched in a formation similar to a German division, deceived the Russians and delayed their attack, the Russians believing them to be reinforcements to the German corps. The night was bitter cold, eight below zero.

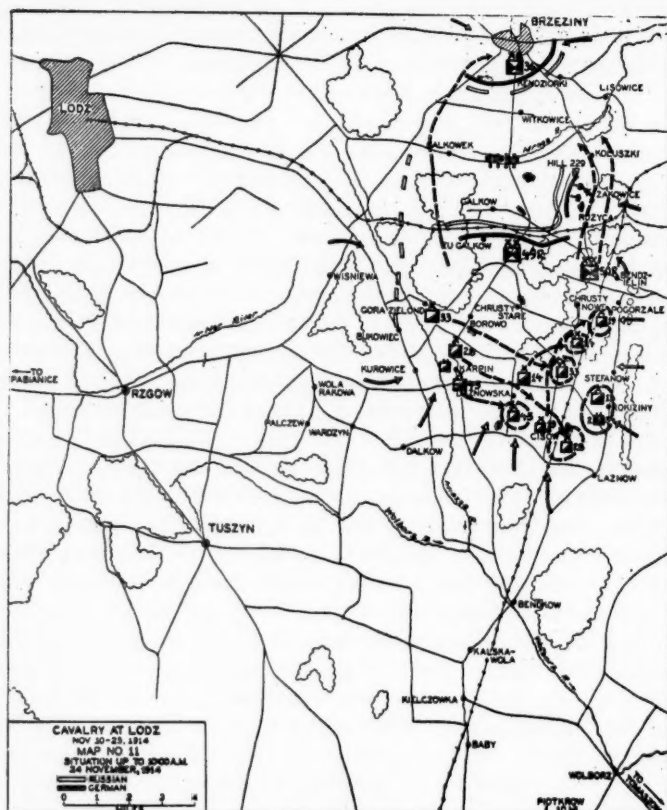
THE BREAKTHROUGH TO BRZESIN

24 NOVEMBER 1914

In narrating the events of this day, a brief synopsis of the main forces of the XXV Corps will be given first, followed by a more detailed account of the I Cavalry Corps. (See Sketch No. 11)

General Scheffer, Commander of the XXV Corps, because food and ammunition were running very short, ordered that a breakthrough out of the Russian ring must be accomplished on 24 November or the corps was lost.

The 50th Division was to push north and outflank from the east, the Russian position on the railroad bank in front of Galkow. The 49th Division was to make a direct frontal attack to be delayed until the 50th Division had begun its attack.



SKETCH No. 11

Although no news had been received from the 3d Guard Division, orders were issued for it to march on Brzeziny on the left of the 49th Division. The I Cavalry Corps was to cover from the west, south and east.

The 50th Division advancing north, turned sharply west in the vicinity of Zakowice and massing its artillery, took the Russian position on Hill 229 and the artillery in position in front of Galkowek under enfilade fire. Practically all of the Russian artillery was destroyed.

About 10:00 AM, not knowing of the success of the 50th Division or of the entry into Brzeziny by the 3d Guard Division,

General Scheffer called upon the I Cavalry Corps to prepare plans for a supreme effort to charge through the enemy lines on the east of the railroad Rokiziny—Koluszki and open a gap for the corps.

Before the order was issued, the message came by a cyclist patrol which had managed to get through the Russian lines during the night, that the 3d Guard Division had arrived in Brzeziny and had captured the high ground to the south.

Based on this encouraging report, the 49th Division pressed the frontal attack, the Russians retreated toward the northwest and northeast. At 5:00 PM the corps commander rode into Brzeziny and the corps was united again in that city.

In this I Cavalry Corps, General von Richthofen, the Commander, issued orders at midnight, 23-24 November, to move early in the morning to prevent Nowikow's Russian Cavalry from outflanking from the east.

The 9th Cavalry Division to occupy the line: Rokiziny—Bendzielin; the 6th Cavalry Division to move to Laznowska Wola, leaving a security detachment at Karpin.

The cavalry was short of ammunition at this time. One squadron of the 28th Brigade was left to cover the Karpin—Borowo area.

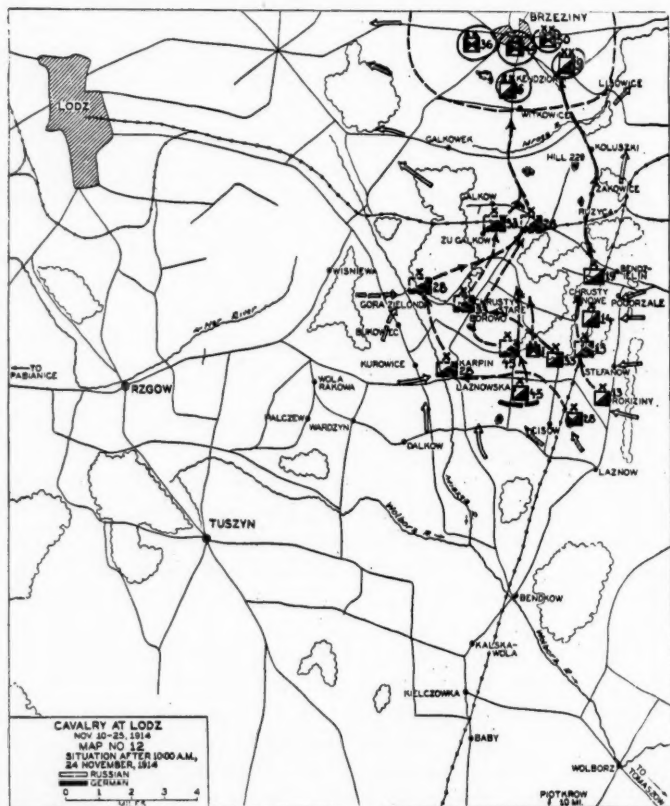
The two divisions were shifted around the fixed pivot formed by the 13th Brigade and the 2d Battalion of the 54th Infantry at Rokiziny. The 28th Brigade marched to Rokiziny on right of the 13th Brigade; the 33d Brigade maneuvered to edge of woods to the north; the 45th Brigade took position to protect from south and southwest; the 19th Brigade was moved to the east of Chrusty Nowe; the 14th Brigade lined up on the right flank of the 19th Brigade.

Both divisions were in the new locations by 8:00 AM, 24 November. An intense artillery fire was soon followed by a dismounted Cossack attack from the forest east of Pogorzale Lugi. The vigorous action of the 19th Brigade, including a mounted charge by the 8th Hussars Regiment, broke up that attack and prevented a penetration by Nowikow's Cavalry at that place.

The Russians moved up on the railroad station at Rokiziny during the morning and placed infantry and artillery fire on the 13th Brigade. The artillery was firing from Stefanow. Russian artillery was firing from Hill 200, southeast of Cisow. Cossacks on foot with infantry advanced in skirmish line against the

45th Brigade. Each cavalry division had a battalion of light artillery and a battalion of infantry in support (the 6th Division still retained the 21st Jäger Battalion attached at Karpin). The attacks were warded off successfully.

At 10:00 AM a message was received from the squadron left at Karpin that several Russian infantry companies had arrived at Kurowice. (See Sketch No. 12) The 28th and 33d



SKETCH No. 12

Brigades were quickly moved toward the west. The 28th to Karpin, the 33d with the Jäger Battalion to the southeast corner of woods east of Karpin. Due to continued pressure the 45th Brigade fell back to the woods a mile northeast of Laznowska

Wola at 11:00 AM. The 13th Brigade held all during the forenoon at Rokiziny under heavy artillery fire and suffered great losses. It fell back at noon in conjunction with the 45th Brigade to the edge of the woods to the north, heavily shelled all the way. At noon the situation was still very critical for the cavalry and for the XXV Corps to the north.

When the message of the 3d Guard Division's breakthrough came, the cavalry was nearly at the end of its strength. It still had several hours to fight to protect the XXV Corps from disaster and cover the withdrawal of its trains and prisoners.

Shortly after noon the enemy was reported marching up from Bukowiec and Kurowice on Gora Zielona. The 28th Brigade was posted on a wide front skirting the forest up to the Miazga River.

A dangerous gap was thus formed by dividing the 6th Cavalry Division into two groups—1st group containing 45th Brigade and two companies of the Jäger Battalion—2d group the 28th and 33d Brigades with remainder of Jäger Battalion. 1st group east of Karpin; 2d group from Borowo to Gora Zielona.

About 3:00 PM a Russian infantry attack was expected. Patrols reported an advance from Bukowiec and Karpin and artillery shelled heavily. At this time Group 1 (45th Brigade) fell back on Chrusty Stare, and Group 2 (28th and 33d Brigades)



MAJOR GENERAL EBERHARD
VON SCHMETTOW (RIGHT)

took up a position echeloned to the right at Zu Galkow and the railroad embankment. Hardly an hour later, just as the 45th Brigade reported it could no longer hold at Chrusty Stare, the division was ordered to Witkowice for the night, in rear of the infantry outpost.

The 13th Brigade of the 9th Division evacuated its position about 3:45 PM soon after the 45th Brigade had retired. The brigade fell back by stages via Bendzielin—Zakowice—Koluski—Kendzierki to the southeast of Brzeziny. In front of it moved the 14th and 19th Brigades. The 19th Brigade remaining to cover the east flank until the 13th came up. It repulsed a second attack from the direction of Pogorzale—Lugi at 3:00 PM.

The 9th Division halted for the night in rear of the infantry outpost line near Kendziorki.

The breakthrough had been accomplished by the coordinated efforts of the several elements of the encircled German forces on the night 23-24 November. The 3d Guard Division had captured Brzeziny in rear of the Russian ring. The 50th Reserve Division had outflanked from the east while the 49th Reserve Division had held in front and finally the I Cavalry Corps had kept the door closed to the rear.

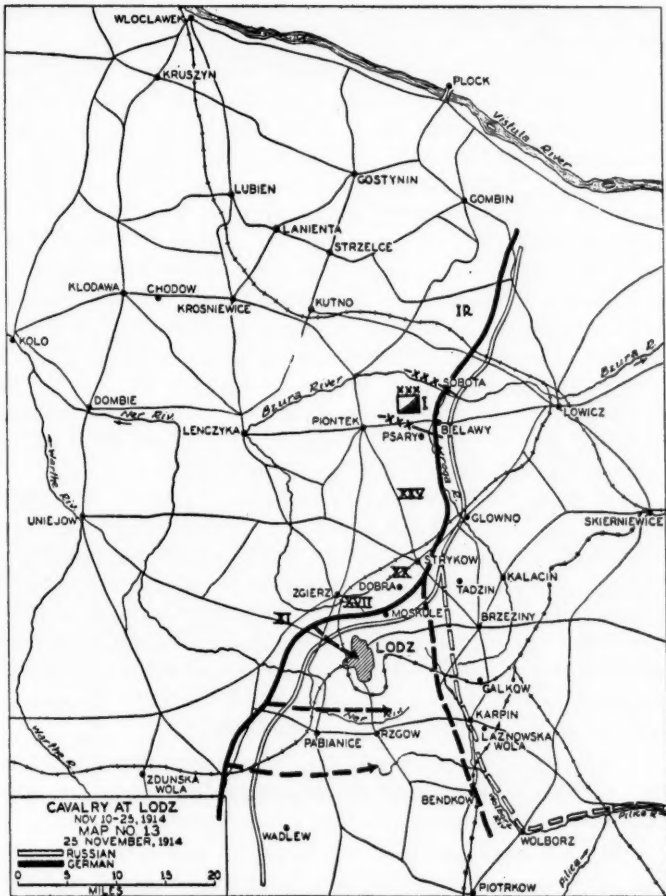
During the night 24-25 November the I Reserve Corps retired to the line: Soborta—Prsysowa. The 3d Guard Division, by severe fighting, reached Niesulkow by midnight. The XXV Reserve Corps reached Głowno during the night 24th-25th. (See Sketch No. 13)

The I Cavalry Corps reinforced by the 72d Brigade, formed the rear guard outpost for the night on the line: Tadzin—Kalacin.

On 26 November the march was resumed. The gap between the XX and I Reserve Corps was closed. The Cavalry Corps with mixed detachments from the XX and I Reserve Corps held the Psary—Bielawny sector up to the Bzura River.

CONCLUSIONS AND COMMENTS

The actual historical solution to this problem of the cavalry assisting to extricate the XXV Corps from Lodz has been illustrated. The solution was not bad at all. Unquestionably Scheffer and Richthofen would have been given a high mark for their work. Hindenburg and Mackensen might not have fared as well at the hands of a critical examining committee. The 3d



SKETCH No. 13

Guard Division solved the problem of cutting through the ring by a hasty effort to get out of the mess, rather than by a studied application of cooperative tactics.

The covering of the withdrawal of the XXV Corps by the I Cavalry Corps was an excellent example of the use of cavalry in defensive combat, delaying and rear guard action. The XXV Corps changed the direction it faced four times in four days. The I Cavalry Corps successfully covered all of these changes

in direction and front. The cavalry corps defensive work was of high order.

Unfortunately, at that early part of the World War, European cavalry was not equipped with sufficient fire-power either in artillery or machine guns to perform the combat missions assigned to or expected of it, especially while on the defensive.

Possibly today's students of the Art of War would solve some of the included problems of divisions and brigades in a little different manner. For example. When at 7:00 PM on 22 November, the 9th Cavalry Division knew it had to cross the Miazga River at Bukowiec and establish a bridgehead on the east side. The decision of when to cross was left to the division commander. He delayed crossing until 4:00 AM, 23 November. At that time he had to fight his way across the river and was not able to get elbow room so that the crossing could be properly used. It probably would have been better to have crossed about 9:00 PM the night before.

In the defensive action covering the retreat of the XXV Corps about 10:00 AM, 24 November, the 6th Cavalry Division split itself into two groups widely separated. One group in the vicinity of Karpin and one farther south on the right of the 9th Cavalry Division. Modern thought is that a better solution would have been to let the 9th Cavalry Division take over the whole defensive mission in the south from Laznowska Wola to Stefanow and to have sent the whole 6th Cavalry Division to Karpin to defend the river crossings there.

It must be remembered that today's students in solving the problems in that action would have the picture as you now have it, viewed from above, always in its complete form.

When you consider that the cavalry, as well as the infantry, was shivering with cold, nearly exhausted, famished, without much ammunition and with inadequate weapons and signal communications, can you find it in your heart to criticize very much of major importance?

The cavalry did accomplish its mission.

The rear and exposed flank of the XXV Corps was protected.

The whole force did escape, covered to the last by the cavalry which eventually filled a gap in the new solid line.

The following principles or characteristics of cavalry in combat are believed to have been satisfactorily illustrated by the action of the I Cavalry Corps at Lodz.



MARSHAL VON MACKENSEN IN 1938

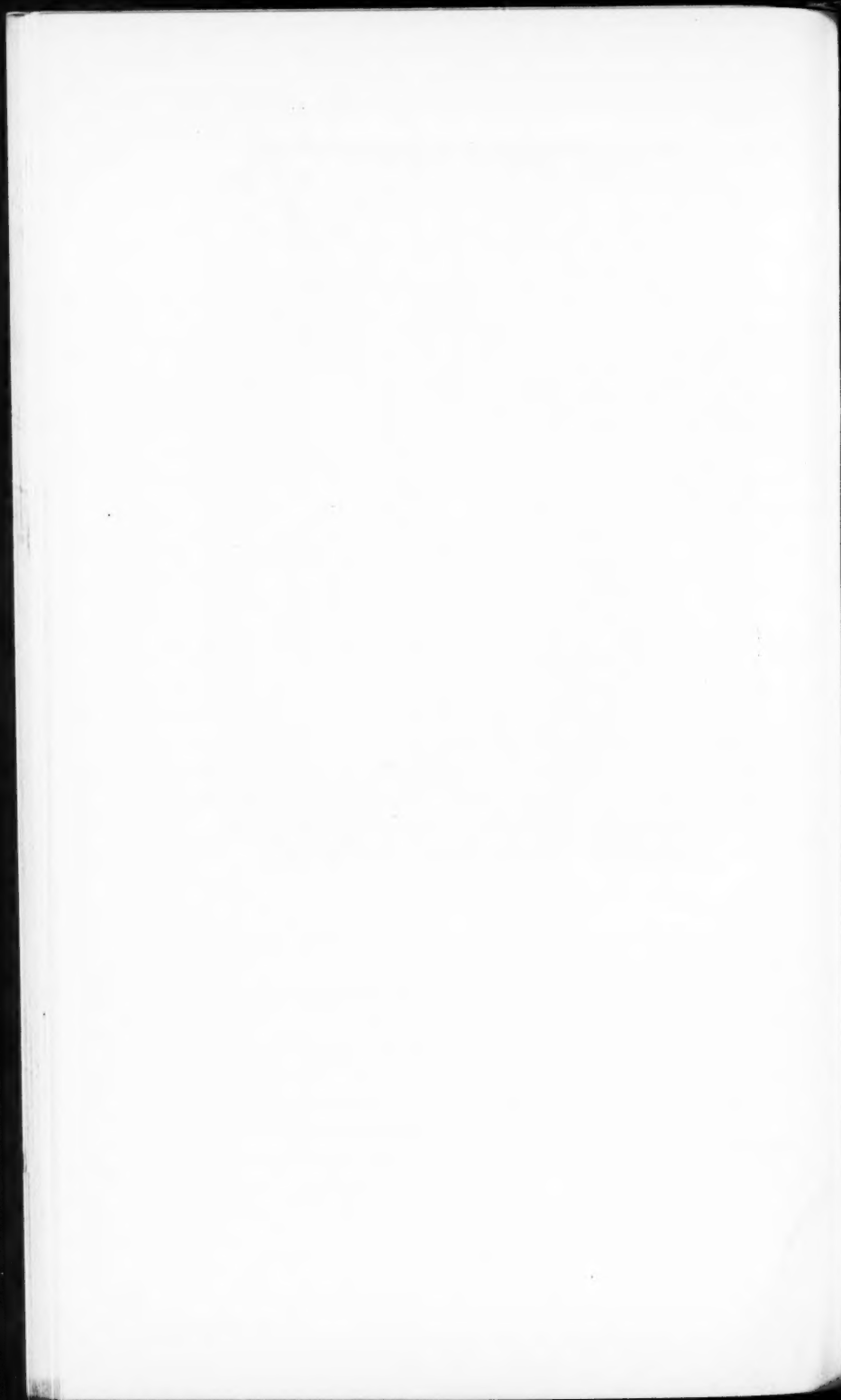
Versatility—ability to maneuver rapidly from one threatened point to another.

Ability to break off one engagement and take on another elsewhere without confusion or great delay.

Utilization of mounted, dismounted or combined action to accomplish a defensive mission.

Quick decisions based on limited information.

The application of surprise and deception to offset lack of numbers.



MILITARY NEWS AROUND THE WORLD

BY

MAJOR E.M. BENITEZ, Coast Artillery Corps



GENERAL

In our December 1937 issue, we gave the estimated military and naval strength of the principal world powers, outside the United States. To complete the picture, the self-sufficiency of these nations, that is to say, the capability of supply of the most important materials for military requirements, such as iron, cotton, oil, machinery, coal and food supplies, is shown below. These estimates are given as published by Alexander R. George, *Associated Press* feature writer.

	Iron (Per Cent)	Cotton (Per Cent)	Oil (Per Cent)	Machin- ery (Per Cent)	Coal (Per Cent)	Ade- quate* Food Supplies
Great Britain.....	100	45	85	100	100	Yes
France.....	100	5	14	100	100	Yes
Russia.....	100	98	100	70	100	Yes
Germany.....	100	None	12	100	100	No
Italy.....	30	None	None	65	None	Yes
Japan.....	50	15	40	65	100	Yes

*Counting colonial sources.

Europe continues its vigorous armament program, spending far more than any other continent. In 1937, Russia probably headed the list of expenditures in arms, with Germany probably second. In three "undeclared" conflicts, perhaps as many as 250,000 to 500,000 or more persons have lost their lives, while several million others have been wounded. Ethiopia has passed out of existence as a free nation; Spain is locked in deadly strife, while great areas of China have been occupied by the Japanese Armies.

On 7 January Premier Mussolini announced that Italy would build two new 35,000-ton battleships, the "Roma" and the "Impero." France laid down the 35,000-ton battleship "Richelieu" in 1935 and a sister ship, the "Jean Bart" in 1937, as a reply to Italy's "Littorio" and "Vittorio Veneto," also 35,000-ton sister ships, laid down in 1934 and now nearing completion. France is planning the construction of two battleships, which is considered necessary if she is to continue the naval policy adopted since the World War of keeping a fleet equal to the combined Italian and German Navies.

The Mediterranean is at present the greatest naval arena in the world. This vital sea lane is the key of the British Empire communication system to Egypt, India, Australia and New Zealand. Military observers point out that Mussolini is holding the bulk of the powerful British fleet in Mediterranean waters. With two Italian army corps in Lybia, the fortification of the Island of Pantelleria, between Sicily and Tunis, which has been converted into a submarine and air base; Italian bomber squadrons in Sicily, Sardinia and Southern Italy, not to mention the Italian fleet, it is not difficult to understand why Great Britain opposes the weakening of the British Forces in the Mediterranean.

ARGENTINA

Navy:

In December 1937 Vickers-Armstrong launched at their naval construction works three destroyers for the Argentine Government, embodying the latest features for this class of craft. Four additional destroyers are now being built in England.

(U.S. Naval Institute Proceedings, December 1937)

AUSTRIA

In April 1936, the Austrian Government refused to comply any longer with the Treaty of St. Germain, and introduced compulsory military system for all males, between the ages of 18 and 42. The strength of the army in September 1936 was 1,462 officers and 36,500 other ranks.

Austria has no war fleet. A river patrol service and a number of motor launches is maintained in the Danube.

(Statesman's Year-Book, 1937)

BELGIUM

The strength of the Army with the colors in 1936, exclusive of forces overseas, was 4,460 officers and 63,000 other ranks organized into three army corps of two divisions each, and one cavalry corps of two divisions.

On the grounds of economy, the small navy maintained by Belgium has been abolished.

(Statesman's Year-Book, 1937)

BOLIVIA

An accord was signed on 19 November 1937, giving inland Bolivia an outlet through Argentina for her potentially rich oil deposits. The way for the agreement with Argentina was cleared when the Bolivian government cancelled all concessions held by the Standard Oil Company of New Jersey in isolated Eastern Bolivia.

Argentina had previously declined to grant transportation facilities from Bolivian oil fields, on the grounds that these fields were largely in the hands of a foreign concern which was a competitor of the Argentine Government Oil Company. The area is now under the direction of a Bolivian Government firm.

The bitter Chaco War was attributed chiefly to Bolivia's desire to find an outlet for her petroleum, which could not find a market due to the fact that neither Argentina nor Paraguay would grant facilities for pipe lines. So Bolivia, claiming Chaco, tried to force her way to the Paraguay River. She was, however, defeated in this effort by Paraguay and barely saved her oil fields from invasion.

(New York Times, 20 November 1937)

During the Chaco War, Bolivia used with good results the 81-mm Stokes Brandt mortar. She also made extensive use of tractors during this war, particularly to move heavy artillery pieces.

(*Revista Militar*, Argentine, October 1937)

BRAZIL

Brazil was discovered by the Portuguese explorer Cabral in 1500, the colony became a kingdom in 1815 and a republic in 1889 as a result of a revolution. Its population is estimated at 40,000,000. Compared with the United States in area, all of the forty-eight states could be comfortably transported to the Brazilian map and then there would be room for another Texas. It contains the world's greatest river and it is the world's greatest source of coffee.

The approximate strength of the army is 5,700 officers and 75,000 men. A French military mission has been engaged for several years in an advisory capacity to assist in training the Brazilian Army. All the military and naval schools are located at Rio de Janeiro.

Navy:

On 9 December 1937, the Brazilian Government signed a contract with three British firms for the construction of six destroyers at a total price of \$14,000,000.00. The ships will be of the same type as the British H-Class of 1,350 tons displacement and 523 feet in length. They will be built by Vickers-Armstrong, Ltd., John L. Thornycroft and J. Samuel White and Co.

The Brazilian government recently has been seeking to strengthen its navy by a building program that included two new cruisers, nine destroyers, and eight submarines.

(*Associated Press*, 9 December 1937)

BULGARIA

The Treaty of Neuilly of 27 November 1919, limited the strength of the Bulgarian Army, abolished compulsory military system and military or naval aircraft; prescribed that the manu-

facture of arms, munitions and war materials would only be carried out at one factory under State control, and prohibited the importation and exportation of munitions.

Under the terms of that Treaty, Bulgaria has surrendered all warships and submarines, but is permitted to maintain on the Danube and along the coast, 4 torpedo boats and 6 motor boats, now of little value, all without torpedoes and torpedo apparatus, for police and fishery protection duties.

(Statesman's Year-Book, 1937)

CHILE

The Chilean Army is organized in 3 divisions, comprising 10 infantry regiments and 3 mountain battalions, 6 cavalry regiments, 4 field artillery regiments, 3 heavy artillery groups and 3 mountain artillery groups, 1 engineer regiment, 1 battalion of railway troops and 2 aviation groups.

The Air Force was organized in 1918 under British instruction and comprised in 1936, 3 air groups, 1 bomber group, 2 fighting seaplanes, and a flying school with 210 airplanes. The Navy consists of the battleship "Almirante Latorre," 11 large destroyers, 9 submarines and various training and auxiliary vessels.

(Statesman's Year-Book, 1937)

CHINA

War Supplies:

According to Admiral Syetsugu, Minister of Foreign Affairs of Japan, war materials are reaching China through French Indo-China, British Hong Kong and Soviet Russia. He mentioned Great Britain, France, Russia, Czechoslovakia and Germany as the principal sources of supply.

According to Japanese dispatches, arms and ammunition are being sent to China by three routes: (1) via Sinkiang and Kansu Provinces, from the Soviet Union; (2) via French Indo-China and Yunnan Province, and (3) via Hong Kong and Canton. The Chinese National Government is now planning to add another route by building a road between Burma and Yunnan.

(Press Reports)

A Shanghai Municipal Council Survey of the four months of fire and warfare which ended in Shanghai in November 1937,



listed 950 Chinese industrial enterprises destroyed and 1,000 damaged. In many large mills the machinery is so damaged that replacements will be necessary before operations can be resumed.

(*New York Times*, 5 January 1938)

COLOMBIA

In 1935, the strength of the army was 634 officers and 11,125 other ranks. The infantry is armed with rifles of the improved Remington pattern, with the French Gras rifle and with the 88-pattern Mauser.

Colombia has two modern destroyers; 1 seagoing gunboat; 3 coast guard patrol vessels; 4 river gunboats and several motor launches for customs service. In 1934 the services of a number of retired British naval officers and men were engaged with a view to reorganizing the Colombian Navy.

(*Statesman's Year-Book*, 1937)

COSTA RICA

The "Good Offices" conference to seek settlement of the Honduran-Nicaraguan "postage stamp" frontier dispute convoked at San Jose, Costa Rica recently, is expected to succeed in its efforts to prevent armed hostilities in Central America. The United States, Venezuela and Costa Rica, as well as the two disputants, are represented at the parley.

(Press Reports)

CZECHOSLOVAKIA

The Czechoslovak territory is one of the richest in Europe, both as regards natural resources and industrial developments. Service in the army as regulated by the law of 19 March 1920, is for 2 years, normally beginning at 20, the soldier passing to the first reserve at the age of 40 and to the second reserve at the age of 50. The army in 1936 consisted of 12 infantry divisions, 4 cavalry brigades, 13 artillery brigades, aviation, engineers and service troops.

(Statesman's Year-Book, 1937)

Skoda: Located at Pilsen are the Skoda works — one of the best known factories of Europe manufacturing armaments, exclusively.

DENMARK

Navy:

Three submarines are under construction and a fourth is to be begun within the next six years. Three destroyers, one mine layer, three mine sweepers and four patrol vessels are also to be built. The number of seaplanes remains the same: 24.

(U.S. Naval Institute Proceedings, December 1937)

The Scandinavian countries — Norway, Sweden and Denmark — refused to join in the resolution of the Brussels power condemning Japan's aggressions against China. This abstention has been interpreted as a sign that these countries intend to follow an isolationist policy in the future.

(Press Reports)

DOMINICAN REPUBLIC

The Army of the Dominican Republic consists of 2,500 men and 200 officers. The Navy has one armed transport and

two coast patrol boats. Commencing in 1936, the Police Force was organized as an auxiliary of the Army.

ECUADOR

The Ecuadorean regular army had a strength in 1935 of 687 officers and 6,086 men. This force is composed of 4 regiments of artillery, 9 battalions of infantry, one regiment and 3 squadrons of cavalry, 3 battalions of sappers and one aviation company. The regular infantry has the Mauser rifle; the artillery has Vickers Maxim, Z.B. machine guns, old-fashioned Krupps and new Ehrards. A military school is established at Quito with 250 cadets.

(*Statesman's Year-Book*, 1937)

EGYPT

According to recent official announcements, Egypt's rearmament program is being speeded up and her entire defense system reorganized and strengthened. Heavy arm orders have been placed in Great Britain and elsewhere and factories are being built in Egypt to produce small arms, artillery, planes and gas masks. Six new military schools have been opened and \$62,000,000.00 is being spent on construction of strategic railroads, roads and barracks.

(*New York Times*, 14 November 1937)

A permanent military base is to be established at Marsa Matrah, about 200 miles west of Alexandria. The construction of an airdrome, heavily ringed with antiaircraft defenses is also to be undertaken. The field defenses organized by the British during the crisis of 1935 are to be maintained and manned by Egyptian Army troops. Special attention is also being paid to the antiaircraft defense of the irrigation dams of the Nile valley.

(*Journal of the Royal United Service Institution*, November 1937)

The first nucleus of the British military mission headed by Major General Marshal Cornwall took up their posts at Cairo, 19 November 1937. This military mission has recommended the complete reorganization of one Egyptian division over a period of three years. Under the terms of the Anglo-Egyptian Treaty a great number of strategical roads are to be built.

The Egyptian Army is now equipped with the British light and medium tanks. Qualified observers believe that much of the Egyptian desert is well suited to action by the right type of tank.

(Illustrated London News, 20 November 1937)

On 14 January troops in every Egyptian garrison swore allegiance on the Koran to their young commander-in-chief, King Farouk. In Cairo, 7,000 troops massed outside Abdin palace to take their oaths.

(Associated Press, 14 January 1938)

FINLAND

Finland celebrated on 6 December 1937 the twentieth anniversary of her independence. Of the thirteen debtors whose annual payments of war debts fall due 15 December, Finland alone has continued to meet installments promptly. On 15 December the thirteen debtors owed the United States a total of \$1,680,170,477.00, representing regular installments due on that date and payment in arrears. The default of all debtors, except Finland, became complete after the year 1933.

(Press Reports)

FRANCE

National Defense:

Three decrees published 21 January are believed to be the most important innovations in the French military organization in modern times. In brief, the three Ministries: War, Marine and Air and their respective General Staffs, are subordinated respectively to the Minister of National Defense, to which post General Marie Gustave Gammelin was appointed while retaining his duties as the Army's Chief of Staff. The decrees explain how the Minister of National Defense will coordinate the material preparations for war while the Chief of Staff of National Defense will work out the general strategy.

The French believe that the creation of the German motorized divisions and the conviction that the next "undeclared" war will be marked initially by a mass air attack, has put a new complexion on a situation which the Maginot line was built to meet. Obviously it would be courting disaster to wait for a

surprise attack before coordinating land and air action. Upon General Gamelin's shoulders rests the burden of giving France a doctrine of war which may determine the nation's fate in the event of future hostilities.

(*New York Times*, 23 January 1938)

Tanks:

An article by General Brossé, published in the *Revue Militaire Générale*, entitled "The Support of Infantry by Fast Tanks and Artillery," deals with the coordination of artillery, tanks and infantry weapons. It is considered a valuable exposition of French tactical doctrine.

The French do not view with favor long distance mechanized raids, except perhaps, in very special cases. The tank, however, is regarded as a target of opportunity.

The types of tanks used in the French Army are: the Renault 35, Hotchkiss 35 and the Medium tank D. There is also the "B" tank or maneuvering tank, weighing from 27 to 30 tons, which would also be used on special occasions to reinforce medium tanks.

Army:

On 11 December 1937, the Chamber of Deputies approved an air defense budget of \$51,000,000.00. The Air Minister, Pierre Cot, asserted that France's air fleet would consist of 1,680 modern planes by the end of the year 1937 and that it was already the strongest in the Continent. He also stated that French pursuit planes were capable of 300 miles per hour and the bombers of 294, adding that these speeds were "noticeably superior to those of similar planes in Germany and England."

(*Press Reports*)

A Communist proposal to reduce the two-year conscription term was quickly rejected. The Minister of National Defense, Edouard Deladier, stated in the Chamber of Deputies that France had spent some \$1,650,000 on authorized defenses in the Jura Mountains and in Southern Alsace. The Versailles Treaty demilitarized the Franco-Swiss frontier, but Deladier assured Parliament that the government had adequate troops and equipment in the sector. The Maginot Line, he said, was impregnable, but motorized offensive columns were necessary

should the enemy succeed in flanking the Maginot fortifications and breaking through the northern and southern frontiers.

(Press Reports)

Air Maneuvers:

Six hundred planes participated in air maneuvers during the period 19-24 August, in the Toulouse-Marseille area. Blue (hostile) ground and air forces operating from Aix were opposed by Red forces based at Toulouse, which included elements of the I Aerial Corps (bombardment) and II Aerial Corps (pursuit). Missions performed involved attacks upon industrial centers, bridges, railroad stations, ship convoys, troops on the march and pursuit protection against bombing attacks. Alert systems functioned well and defending planes took to the air within 3 to 5 minutes after receiving warning. Civilian populations of cities cooperated in passive defense measures.

Le Bourget, outside of Paris, blossoms into one of the greatest air fields of Europe. With its new buildings, it is the largest international air station on the Continent. The new structures extend along the field for 764 feet. By reclamation of land on the north side of the field the landing area has been increased from 500 to 812 acres, with the take-off runs increased from 3,936 feet to 8,200 feet.

(New York Times, 28 November 1937)

Indo-China:

The Minister of the Colonies announced that the Cabinet had appropriated large sums to reinforce the military defenses of French Indo-China. The reinforcements to be provided by the new appropriation will be in addition to the work started a year ago. Under that plan naval engineers began preparatory work toward the creation of a great naval base at Cam-Ranh, halfway between Singapore and Hong-Kong.

Plans were also made for building a secondary base in Along bay, facing the Chinese island of Hainan, and for increasing the number and power of the coast defense guns at Cape Saint Jacques, controlling the river entrance to Saigon.

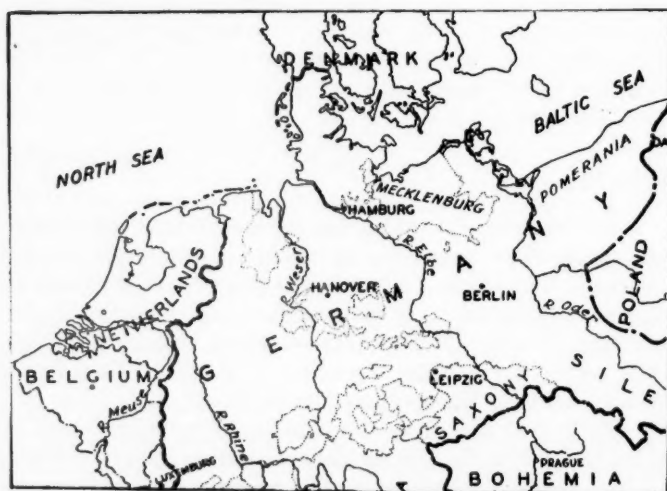
Other defense measures included the stationing of modern submarine flotillas at Cam-Ranh with additional fast destroyers and squadrons of ultra-modern bombers.

One 7,800-ton cruiser, five colonial sloops, five river gunboats, one submarine flotilla and several gunboats make up the French fleet normally stationed in the Pacific.

GERMANY

The German Army maneuvers, which started on 20 September 1937, embraced all three services: Army, Navy and Air Force. The exercises lasted six days, and were said to be the most elaborate maneuvers that have been held in Germany since the World War. Hitler, accompanied by Mussolini, Count Ciano, Italian Foreign Secretary, Marshal Badoglio, lately commander in chief in Abyssinia, General Roeder, Hungarian Minister of War, and other distinguished visitors, witnessed the climax of the exercises from the positions held by the X Corps.

In Germany, the supreme command at this time was vested in Field Marshal von Blomberg, who was also Defense Minister. The Army and Navy each has its commander in chief and the Air Force has its Minister, but Field Marshal von Blomberg controlled all combined operations and presumably settled all interdepartmental questions.*



MANEUVER GROUNDS, GERMAN ARMY, SEPTEMBER 1937

The terrain selected covered wide portions of the districts of Mecklenburg and Pomerania and included the Baltic coast in order to permit the intervention of naval forces. The Red

*Von Blomberg resigned his post 4 February, 1938. Hitler has assumed direct command of the German land, air and sea forces.

forces on the defensive (the X Corps from Hamburg) consisted of three infantry divisions and one mechanized division. The First (Blue) Army on the offensive consisted of five infantry divisions organized into two army corps (the II and III Corps from Stettin and Berlin, respectively) and one mechanized division. Both sides were well provided with aviation. The units engaged had been brought up to war strength by drafting men from other units, or by calling out reservists and were well supplied with war materials. According to reports, over 100,000 participated.

Major General Temperley, British Army, who witnessed the maneuvers, comments in the *Daily Telegraph*, London, 25 and 26 October 1937. He stated that he watched at close quarters the infantry of one division in attack. They moved widely dispersed, the frontages being greater than last year. Every advantage of the ground was exploited.

The German defensive position did not seem to be organized in such depth as the British, and the proportion of troops in reserve seemed less, both in small and large formations. The Blue commander had committed the whole of his five divisions on the second day. The regimental command posts were moved well forward—within 1,000 yards of the front line—where a good view could be obtained of their sector of the position.

Antitank guns were to be seen everywhere. Roads were actually blocked to prevent the advance of tanks and obstructions were freely used.

Three types of tanks were observed: a four-ton tank with two machine guns; a later development, armed with a gun and a machine gun, weighing about eight tons. There was a still heavier type, about 11 to 12 tons, mounting a short howitzer or mortar, presumably for close support in a tank attack to engage the hostile antitank guns. The early four-ton tank appears not to have given entirely satisfactory results in Spain and will probably be replaced by a more efficient type. On the last day for the final assault on the Red defenses, two brigades of some 600 tanks were launched in successive waves, well ahead of the supporting infantry. The woods and lakes forced the tanks into a pocket and, in the face of the large number of antitank guns in position, the attack could hardly have succeeded. But the attack had been planned to show Signor Mus-

solini something of Germany's armored vehicles and was not intended to be a serious tactical operation.

Aviation was used night and day for all kinds of operations: dive bombardment on industrial and maritime installations and bombardments at low altitudes; particularly noticeable was the immense amount of low-flying attacks carried out against hostile troops and artillery. It far exceeded anything usually seen at maneuvers and it is evidently a role in which the German Air Forces will play a considerable part in war.

Antiaircraft equipment was used on a lavish scale. There are three calibers of guns: the 88-mm, with a ceiling of 36,000 feet; a 37-mm and a 22-mm to deal with low-flying aircraft. The latter can also be used as antitank gun. They are brought well forward to protect the batteries in action. Reports indicate that practices with the 88-mm have been remarkably accurate and the Germans seem to be confident that their antiaircraft artillery will be able to afford good protection to the army and rear areas from air attacks.

General Debeney, French Army, sums up the German Grand Maneuvers by stating that they demonstrated a training based on a war of materials and the striking adaptation of modern masses to the technical facilities of this matériel to develop power. By combining in the same operations the land, naval and air forces, and by associating the population therein, through antiaircraft defense, the military authorities wished to give the impression of actual war conditions and to show also the necessity of concentrating authority in a single person in order to prepare for and conduct such a war.

(*Daily Telegraph* and *Morning Post*, London, 25, 26 October 1937. *Excelsior*, France, 15 November 1937, and other sources)

Infantry Regiment:

The infantry regiment consists of fifteen companies, a cavalry platoon and signal troops. Of the fifteen companies, nine are rifle companies, three are heavy machine-gun companies (4, 8, 12), one company infantry cannon (13), an antitank company (14) and one cyclist company (15). The first twelve companies are assigned to three battalions, each battalion having, in addition, a communication section. The 13th, 14th and 15th Companies depend directly from the regimental commander. In principle, the cyclist company marches and fights with its regiment; however, the division commander utilizes these com-

panies to reinforce the reconnaissance group, to obtain information along a direction other than that pursued by the reconnaissance group or as mobile reserve.

(*Revue Militaire Suisse*, December 1937)

In view of Hitler's desire of colonial expansion, the colonies lost by Germany in 1919 grow in military importance. They embrace about one million square miles and a population of approximately 12,500,000 and were turned over to the British Empire, France, Belgium and Japan, the so-called "mandatory powers," that administer them "on trust" from the League of Nations. These colonies were distributed as follows:

German East Africa—Now split into Kenya and Tanganyika, given to Britain.

Urundi and Ruanda—A strip of former German East Africa bordering Belgian Congo: Given to Belgium.

German South-West Africa—Given to the British dominion, Union of South Africa and renamed South-West Africa.

Togoland (West Africa)—Two-thirds to France, one-third to Britain.

Cameroons (West Africa)—Five-sixths to France, one-sixth to Britain.

New Guinea and Bismarck Archipelago (Pacific) — Given to Australia.

Samoa (Pacific) — Given to New Zealand.

Shantung peninsula, Cardline, Marshall and Ladrone islands (Pacific) — Given to Japan.

(Italy obtained the Austrian Tyrol by the Treaty of Versailles and in 1919, a strip of Jubaland [Africa] from Britain; in 1935, a strip of Somaliland [Africa] from France.)

Great Britain and France believe that the return of these possessions would weaken the French and British defense systems. They argue that, for example, Tanganyika and Kenia could be used as submarine and air bases and that hostile forces established thereat could cut the Cape-to-Cairo air line. France has the same argument about Togoland and the Cameroons, claiming that these possessions are a bulwark in their defense system. In general, Great Britain has gained more territory from the World War than any other Power and the peaceful

and satisfactory solution of this colonial question constitutes today a most important problem for the British Government.

Navy:

Two new 35,000-ton battleships now under construction will be armed with eight 15-inch guns and twelve 6-inch guns. Two new battleships, the "Sharnhorst" and "Gneisenau," launched toward the end of 1936 are armed with nine 11-inch guns and twelve 6-inch guns. Germany is staying below the permitted caliber limit, so as to secure greater armor and underwater protection and greater speed, remembering that in the Battle of Jutland the Germans sank four more ships than the British, despite the higher caliber of the British guns, because the British sacrificed armor protection to firing power.

Two 19,250-ton airplane carriers are also under construction.

Germany is rapidly expanding in submarines; most of them, however, are small and fit only for defense in home waters.

The pre-war German fleet was built primarily to fight the British fleet in the North Sea. The vest-pocket battleships built under the Versailles Treaty have a high speed and a large cruising radius.

By 1941, the German fleet will consist of five battleships, three armored ships of the "Deutschland" Class, two aircraft carriers, forty-two destroyers, and torpedo boats and about 23,000 tons of submarines.

(U.S. Naval Institute Proceedings, November 1937)

Synthetic Rubber:

Buna, Germany's artificial rubber, is considered as a successful replacement for rubber. Its cost is half as much as natural rubber at present market prices, wears longer, and resists heat, moisture and oil better than the natural product.

The German Government expects that next year one-third of the national demand for rubber will be met by Buna. As Germany now imports about 80,000 tons of raw rubber annually at a cost of 100,000,000 marks, this means that next year it is hoped to produce something like 27,000 tons of synthetic rubber, worth considerably more than 33,000,000 marks.

What the present production amounts to, is a military secret. To date, the army, the postal system and the railways have absorbed it all; the product is not marketed. But it is

understood that the entire army needs for automobile tires are being met from this source.

(*New York Times*, 21 November 1937)

GREAT BRITAIN

Air Force:

The Under Secretary of State for Air declined to answer in the House of Commons the question concerning the proportion in the Royal Air Force of fighting aircraft, night bombers and day bombers. He stated, however, that there are at present in the Metropolitan Air Force 123 squadrons of which 70 are bombers, 30 are fighters and the remainder, other types. There are no fighters overseas.

The Aeroplane, 24 November 1937, gives photographs and complete information concerning weights and performances of British aircraft. Sizes range from the 23-foot span of the smallest type to the 123-feet of the biggest air liner.

(*The Aeroplane*, 24 November 1937)

The Regular Army is to be equipped at once with the "Bren" light automatic gun, replacing the Lewis gun throughout the Army. The Territorial Army will be similarly equipped as soon as guns become available. The "Bren" gun weighs less than the Lewis and is less liable to jam. Its firing rate is 550 rounds per minute. The word "Bren" is a contraction of the words "Brno" and "Enfield."

(*United Services Review*, 30 September 1937)

Antiaircraft Guns:

The Swedish steel works and arms factory of Bofors specializes in the manufacture of antiaircraft weapons. Military experts in Europe are especially enthusiastic about the 40-mm antiaircraft gun, which is said to be extremely efficient.

After the Treaty of Versailles, all the Krupp patents were transferred to Bofors, in which Germany acquired an interest. Swedish experts later improved the German designs and patented new inventions. Some years ago the Swedish multimillionaire and international financier, Axel L. Wenner-Gren, bought the German interests in Bofors. He is a strong advocate of the unification of the Scandinavian nations into a bloc to cooperate with Great Britain. A comprehensive deal between

Britain and Bofors was concluded at the outset of the British rearmament program, and Britain placed large orders with Bofors for antiaircraft guns. Simultaneously, it was rumored that the British government had obtained considerable influence in Bofors by buying the greatest possible amount of stock under the Swedish law, but suggestions that the British were buying out Bofors were strongly denied by the company.

(Condensed from *New York Times*, 14 November 1937)

Antiaircraft Target Practices:

The results of antiaircraft target practices during 1937 show an increase in the standard efficiency reached by units, both Regular and Territorial, particularly in regard to the determination of altitude by means of height-finders. In a series of practices with full-charge service ammunition, four-gun batteries were fired at towed targets, ranges varying from 2,300 yards to 4,700 yards, and altitudes from 8,000 to 13,000 feet. The target was hit in two-thirds of these shoots, the average number of hits being six. One practice was carried out with service ammunition at a wireless controlled airplane. The target was brought down with the first few rounds fired. Thereafter, practices were confined to practice ammunition and a second wireless-controlled plane was subsequently hit.

(*United Services Review*, 21 October 1937)

Signal School:

The Admiralty has announced the decision to build a great new central Signal School at Portsmouth at an estimated cost of over \$1,500,000. The site has already been acquired and the work of clearance has started. The premises allocated to the Signal School in Portsmouth Barracks are considered to be inadequate.

In the whole range of naval warfare, it would be difficult to name any single subject of more vital importance than the system of communication. The whole value of the most elaborate organization for gathering information in war time is entirely dependent upon the ability to transmit it. A reconnaissance squadron may sight an enemy squadron; a spotting airplane may perceive the errors in long-range gunfire; but unless this information can be conveyed to those who can act upon it, such knowledge is useless.

(*United Services Review*, 21 October 1937)

General Staff:

Major General Viscount Gort, 51 year-old World War hero, was named last December, Chief of the Imperial General Staff in what military circles considered a revolutionary shakeup of the British High Command, involving resignation of three military members of the Army Council and their replacement by younger men.

(Associated Press)

Malaya:

Presentation of two squadrons of military airplanes to the British Government by the rulers of the Federated Malay States was announced on 24 November 1937. The aircraft will be stationed in Malaya.

(Associated Press)

Navy:

At the present time, five airplane carriers (one of 22,000 tons and the others of 23,000 tons) are being built, accommodating 350 planes. Older carriers, such as the "Furious," "Courageous" and "Glorious" are being modernized. Eventually, the Navy will possess 10 carriers housing well over 500 planes.

The British Navy is entirely an oil-burning organization, but only 7% of Britain's oil supplies is produced at home.

(Foreign Affairs, January 1938)

Great Britain, undertaking a 7½ billion dollar rearmament program, is building ships at a fast rate. She has 285 vessels aggregating 1,216,398 tons, and five authorized or contracted for battleships, the first of which is expected to be ready late this year.

The British program of naval construction for 1937 was the most important undertaken since the World War; it included three 35,000-ton battleships, two aircraft carriers, seven cruisers, sixteen destroyers, six submarines and many other vessels of less note. The two battleships already begun under the 1936 program will increase British strength in capital ships to twenty early in 1941.

Great Britain's "mosquito fleet" was augmented last December by Motor Torpedo boat 102, which experts contend is the fastest and most powerful vessel of its type. While travel-

ling at 50 knots, she can fire from both of her 21-inch torpedo tubes. Her constructors, Vosper Ltd., of Portsmouth, selected a single Italian Isotto Fraschini engine of 1,000 horsepower which weighs three pounds per horsepower. The Vosper plant is building a high speed craft of smaller types for the Admiralty new defense program.

(Press Reports)

Australia:

The Defense Estimates total no less than \$55,000,000' nearly \$15,000,000 more than last year and constitute a record for Australia. Large sums are being expended for the Navy and Air Force. The Army is to be expanded to 23,000 men and special attention is to be paid to coastal defenses; mechanization will be speeded up and new oil tanks are to be established near Sidney. Training in antigas and passive defense measures against air attacks will be undertaken in large centers of population. Vigorous attempts are also being made to make the Commonwealth independent of outside sources of military supplies.

New munition factories for the manufacture of guns, shells, high explosives and machine guns have been erected near Melbourne, where over 3,000 workers are employed and a capital of about \$17,500,000 has been invested. The manufacture of the light automatic weapon "Bren," has been started and a \$1,250,000 factory is to be planned for its production in mass. The Federal Government has purchased the manufacturing rights of the "Bren," patents for which are held in Czechoslovakia, and the necessary machinery and equipment will be purchased in the United Kingdom.

A Tank Corps School is to be established in Victoria and modern British tanks are expected shortly to form a nucleus.

(*Journal of the Royal United Service Institution*, November 1937)

Naval Bases — Malta:

The island of Malta, considered the keystone of British defense in the Mediterranean, is 17 miles long and 9 miles wide, with harbor works, docks, airdromes and other facilities on the wider southeastern corner. It is heavily fortified with modern armament, comprising seacoast, antiaircraft guns and searchlights. It is estimated that the British maintain in Malta a force of three regular infantry regiments, 500 Royal Engineers

and about 1,000 artillerymen, for the manning of the seacoast and antiaircraft guns.



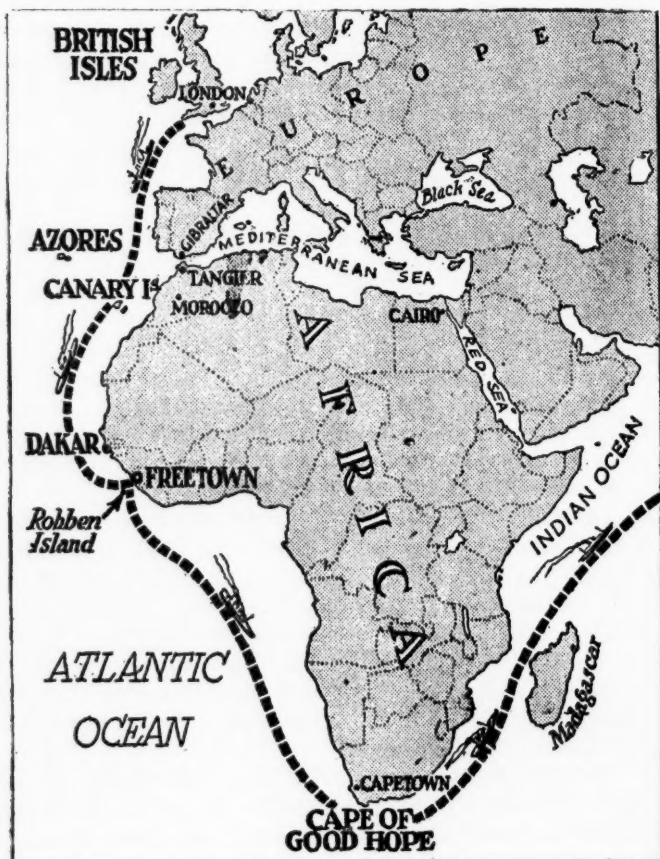
Singapore:

Singapore holds a dominant position as guard of the Malacca straits and is Great Britain's protection for India, Australia, New Zealand and other British domains from a Far East attack. Its value as a naval base is that it commands sea communication from the East and West, just as Gibraltar does in the Mediterranean, and for this reason it is often referred to as the Gibraltar of the Far East. Britain has spent millions of dollars in fortifying the island of Singapore, and naval experts believe it to be a dream of perfection well fitted out with vast dry docks and other installations necessary for offensive and defensive warfare.

On 14 February, the new Singapore naval docks will be formally opened. These docks are the largest in the world, designed to accommodate vessels up to 55,000 tons. In addition to the drydocks, where warships of the largest type can

undergo repairs, Singapore has accommodations for storage of oil, fuel, explosives and other naval supplies and has the finest airport in the British Empire and one of the finest in the world. Even when Berlin's great new airport at Tempelhof is finished, it will still lack Singapore's advantage in being a seaplane port as well as an airdrome for land planes. The total estimated cost of the new air base alone is \$22,500,000.

The British government has announced that combined maneuvers of the reinforced navy, army and air force will be held for six days, beginning 2 February, for the purpose of testing the various defenses at Singapore, and it is believed that



these exercises will be the largest that Great Britain has held in the war-troubled Far East for many years.

According to Admiralty statements, three United States warships will participate in the inauguration of the British Empire's formidable naval base which, with its powerful guns dwarfs Gibraltar in the extensiveness of its defense works.

African Base:

Fearing its trade route to the Far East through the Mediterranean and Red Seas may be closed in event of war, Great Britain has decided to convert the West African port of Free-town into a big naval base to guard the Far Eastern route by way of the Cape of Good Hope.

(*Chicago Tribune*, 13 January 1938)

Hongkong:

Hongkong, Great Britain's Crown Colony off the southeastern coast of China, seems to be deeply disturbed by the events of the last few months, such as the Japanese attacks on Chinese shipping near Hongkong, the blockade of China's coast, the frequent bombing of the British-owned Canton-Kowloon Railroad and the warnings from the British colonial authorities at London that Hongkong should curb political activities of Chinese officials given asylum there.

The British Government's \$25,000,000 defense program has been supplemented by a fund almost equal in amount which has been raised locally. The program now virtually completed, includes military roads, new supply sources for water and power, an air field, new guns, and the most modern antiaircraft equipment.

The island's population is 1,500,000, most of them Chinese. The Japanese bombings of the Canton-Kowloon Railroad, which connects Canton with the Hankow line, have resulted in a vast accumulation at Hongkong of cargo awaiting transportation into the interior of China.

(*Herald Tribune Bureau*)

GREECE

The effective strength of the army in 1936 was 5,187 officers and an average of 52,700 other ranks. The infantry is armed with the Mannlicher-Schonauer and the Lebel rifles, and with Schwargloze, Hotchkiss and St. Etienne machine guns. The

artillery is armed with 65-mm mountain guns, Schneider 75's and 105-mm, Model 1919 Krupps and Schneider 155's.

The navy comprises 12 destroyers, 9 torpedo boats, 4 mine-layers, 6 submarines and a variety of miscellaneous craft. The services of a British naval mission to reorganize the Greek fleet were lent by the Admiralty from time to time between 1910 and 1932.

(*Statesman's Year-Book*, 1937)

GUATEMALA

The Guatemala-Honduras boundary survey has been completed and the final report of the Commission should be available in the near future.

The Salvador-Guatemala Mixed Boundary Commission, organized in February 1936, is also preparing maps of the frontier zone between the two republics. Arbitration of the territorial difference will be by direct negotiation between the foreign ministers of the two Governments.

(*Pan American Union Bulletin*, October 1937)

HAITI

The Haitian Constabulary consists of 2,670 men and 217 officers. Its Commandant is Colonel Demosthenes P. Calixto, who rose by merit from private to colonel and department commander under successive U.S. Marine Corps Chiefs and was made Commander-in-Chief upon the American withdrawal in 1934.

HONDURAS

Nicaragua and Honduras have signed an accord designed to prevent outbreak of war on the Central American isthmus pending final solution of the postage stamp border dispute between the two countries.

The pact, containing provisions for troop withdrawals and other measures to ease the tension which has existed in both republics since last August, was drafted by the "good offices" conference of delegates of the United States, Venezuela and Costa Rica.

The accord was signed in the Presidential palace in the presence of President Leon Cortés and all the delegates, including Dr. Frank P. Corrigan, American representative.

(United Press)

HUNGARY

On 12-15 September 1937, the Hungarian Army held maneuvers on the largest scale since the World War, under the Chief of Staff, Field Marshal Ratz, who acted as Director of Maneuvers. Each side consisted of one Field Army of two to three corps, of which one corps was active and the others were represented by the Staffs only.

Blue Forces: The I Corps, consisting of one infantry division, one motorized brigade and one cavalry brigade.

Red Forces: The IV Corps, consisting of four reinforced infantry brigades.

The purpose of the exercises was to train the officers and men in modern warfare. Hungary is still prevented from providing its army with the most modern weapons of combat due to restrictions of the Treaty of Trianon.

(*La France Militaire*, 7 January 1938)

ITALY

Army:

The Official Gazette announced last November that all noncommissioned officers and men of the 1908 and 1909 army classes were being called back for military training in eight districts. The call was in keeping with Premier Mussolini's plan to keep reserves fit. Reservists of these and other classes have been receiving postcards notifying them to appear for special instruction of unlimited duration. Another decree retained in service all air force radio operators, automobile drivers and mechanics of the 1915 class.

(Associated Press)

Ethiopia:

The Duke of Aosta, cousin of King Vittorio Emanuele III, was appointed by Premier Mussolini last November to be Viceroy of Ethiopia, succeeding Marshal Rodolfo Graziani.

(*New York Times*, 20 November 1937)

Libya:

Details of Premier Benito Mussolini's North African war machine were disclosed with publication of a decree of last July which doubled the military forces in Libya by creating an additional army corps for service there.

The new corps, it was revealed, includes six regiments of infantry, four regiments of artillery, one regiment of engineers, one sanitary company, one commissary company and one automotive center.

Early in the fall, Mussolini began moving the XX and XXI Army Corps to Libya. An official explanation gave "the international situation" as the reason. War supplies have been concentrated there in sufficient quantities, reports said, to enable the colonial army to subsist for many weeks without replenishment.

(*Associated Press*, 21 January 1938)

Navy:

On 7 January, the Italian Government announced the largest construction program in her history, making an impressive bid for her naval supremacy in the Mediterranean. The program comprises two new 35,000-ton battleships similar to the "Littorio" and the "Vittorio Veneto," launched in 1937, twelve 2,000-ton flotilla leaders, and a number of submarines. These ships are to be in service by 1942.

Counting only modern ships — those launched or modernized after 1928 — Italy, according to this program, will have by 1942, eight battleships, seven Class "A" cruisers, twelve Class "B" cruisers, ninety-six flotilla leaders, destroyers and torpedo boats and well over one hundred submarines.

(*New York Times*, 8 January 1938)

Three submarines—the Marcello, the Dandolo and the Mocenigo — were launched 20 November at the Montfalcone shipyards. They are boats of 1026 tons, each equipped with

eight torpedo tubes and two cannon and capable of submerging to a depth of 300 feet. They have a large cruising range.

(*New York Times*, 21 November 1937)

Air Force:

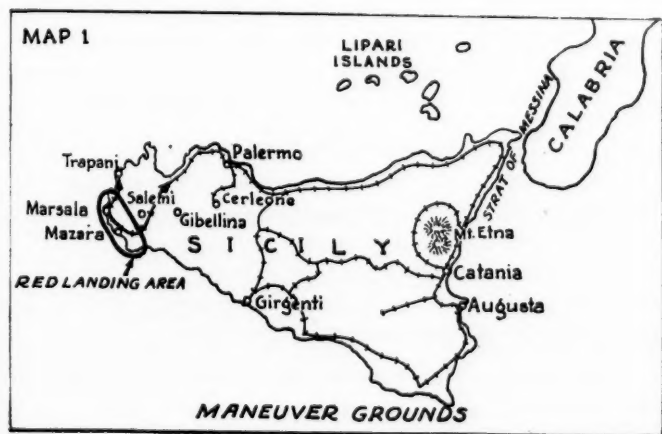
The entire Italian air combat forces are combined in the Royal branch of aviation. Their administration and organization falls to the Minister of Aviation who exercises his power through the general staff of the Air Force and the Commander in Chief of Aviation. The air force is divided into the Army, Navy and Colonial branches.

(*U.S. Naval Institute Proceedings*, December 1937)

Maneuvers:

The Grand Maneuvers of the Italian Army were held on the strategically important Island of Sicily, August 12-18, 1937. The main objects of the maneuvers, as announced, were as follows:

- (1) Testing of the adequacy of the defenses of the Island of Sicily.
- (2) Study of a new lighter organization for the infantry division.
- (3) Experimentation with a reorganized mechanized brigade called a "brigata corazzata."



Troops engaged:

Blue:

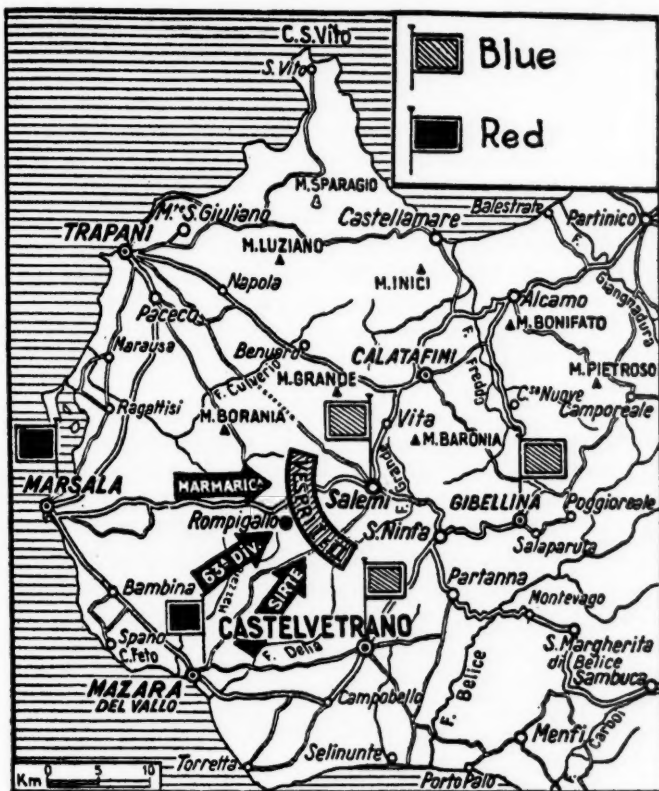
XII Army Corps, General Ambrosio, Commanding.
Vespri (28) Division
Peloritana (29) Division
Vespri II (provisional) Division
Corps troops
10th Bersaglieri
12th Corps Artillery
12th (supplementary) Corps Artillery
1 group (squadron) cavalry
4 battalions Black Shirts
1 battalion light tanks
1 battalion antiaircraft artillery
1 battalion engineers
1 signal company
1 chemical company
Motor transport and services.

Red:

XXII Army Corps, General Nicolosi, Commanding.
Sirte (61) Division (now stationed in Libya)
Marmarica (62) Division (now stationed in Libya)
63d Division (assumed)
64th Division (assumed)
1st Mechanized Brigade
Corps troops
20th Infantry
2 regiments mobile territorials (assumed)
22d Corps Artillery (assumed)
1 battalion artillery motorized
1 battalion antiaircraft artillery
20th Engineers
Signal detachment
Chemical detachment
Motor transport and services.

Each division was organized provisionally into the new, light form, i.e.:

2 regiments of infantry each of 3 battalions
1 machine-gun battalion of 3 companies



SITUATION ON THE MORNING OF 16 AUGUST

1 regiment of artillery of 3 battalions
Engineer and service troops.

The *Brigata Corazzata* (mechanized brigade) consisted of:

- 1 regiment of tanks
- 1 regiment of Bersaglieri (motorized)
- 1 motorcycle detachment
- 1 artillery detachment, 20-mm anti-aircraft and anti-tank.

The attacking force in this problem (Red) was superior to the defense by one division and one mechanized brigade and

also had decisive sea and air superiority. Initially, the preponderance was somewhat greater for the Peloritana Division (Blue) was held near Palermo and could not intervene in the early action.

The exercises consisted of a combined operation, in which Red, having gained local command of the sea and of the air, disembarked a force of two divisions and one mechanized brigade on the coast between Marsala and Cape Granitolo, and then endeavored to advance northwards on Trapani and Palermo.

The Blue defending force, having been unable to prevent Red's landing, endeavored to stop the enemy's subsequent advance and seize the first favorable opportunity for counter-attack. Red used the mechanized brigade, striking the left and rear of the Blue Corps; however, its advance was stopped by Blue's counterattacks.

At the critique, General Gabba (Badoglio's Chief of Staff during the Abyssinian Campaign) emphasized the importance of early warning to the defense, illumination and rapid displacement.

The results of the two-infantry regiment division were not conclusive. Some observers felt that when one regiment of infantry was taken from the normal division (three regiments), there remained only a reinforced brigade. The infantry may become so reduced that it will have to be relieved, while the artillery is still fully effective. If the present division has become logistically too heavy and tactically too complex, it should not be lightened at the expense of the infantry, which is the backbone of the unit.

On the other hand, it may be noted that the four new Italian divisions now in Lybia are organized each with two regiments of infantry. This may be due to the special conditions existing there. The metropolitan divisions sent there during the Abyssinian War were of similar organization. Today, there have been no changes in the organization of the metropolitan troops in Italy; however, the Italian troops in Spain are organized into the equivalent of three-regiment divisions, in spite of the fact that these legionnaire divisions are exceedingly light.

The chief criticism of the *brigata corazzata* is that, while it is an excellent weapon for breaking through the hostile defense, it will probably not arrive within striking distance without artillery support. The hostile artillery will either stop its advance or cause such heavy losses before it reaches its objective, that it will be ineffective after it gets there. If it is given

sufficient artillery, say a battalion of 100/17-mm howitzers and a battalion of 103/20-mm guns, it will no longer be a *brigata corazzata*, but a *divisione corazzata*, and even when so organized it will probably have to be furnished with reinforcing artillery from the army.

Motorized Maneuvers:

While the Italian Army Grand Maneuvers were taking place in Sicily, the army was also holding maneuvers for its motorized units in the Veneto, an area roughly bounded by the Dolomite Alps, the Adige River, the Gulf of Venice and the Tagliamento River.



FIGURE 1

Maneuver Grounds, Motorized Maneuvers, August 1937

The maneuvers were designed primarily for the technical study of the movement and employment of fast moving troops in terrain of the type selected. The troops engaged were all mechanized, motorized or mounted and were all on a war footing. The maneuvers were witnessed by the high command and staff of the Italian Army and by the military attachés and military missions of Germany, Hungary and Austria. Troops engaged:

Blue (Motorized Division):

Two infantry regiments of two battalions each
 One field artillery regiment of three groups
 One machine-gun battalion
 One motorcycle battalion
 One battalion of light tanks
 One engineer battalion
 Antiaircraft and antitank defense units
 Service troops.

Red (Fast Division):

Two cavalry regiments
 One regiment of bersaglieri of three battalions
 One motorized machine-gun company
 One artillery regiment (partly motorized)
 One battalion of fast tanks
 Other mechanized units.

General Situation: The Reds, by a surprise attack, have broken across the frontier of the Carnic Alps and are advancing towards the southwest.

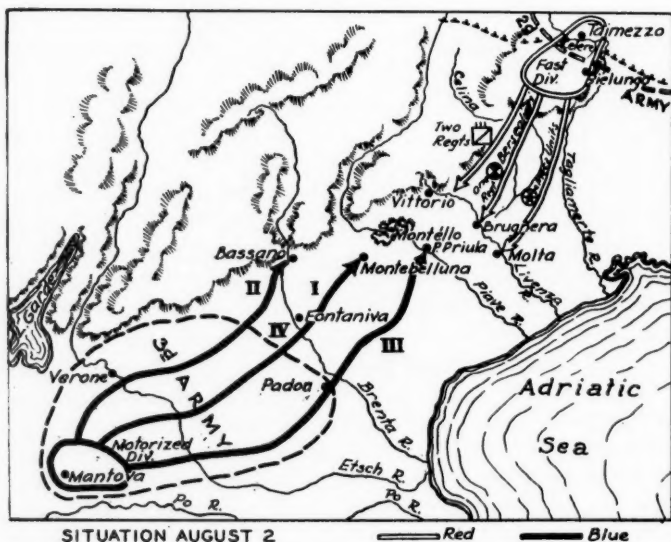


FIGURE 2

Special Situation (Blue): The Motorized Division has been directed by the Army Commander to move on the morning of 2 August to the Piave River and eventually to the Livenza River with a view to seizing and holding a river line on which the hostile advance may be stopped.

Special Situation (Red): The 2d Mobile Division, which has broken through the Blue frontier guards, has been ordered to advance on the morning of 2 August to the Livenza River and eventually to the Piave River to facilitate the advance of the Red Army.

At 6:15 AM, 2 August, the Motorized Division moved out of Mantova in four columns (the fourth column — center — in reserve), over a wide front, in order to reach the Brenta and the Piave as soon as possible. It reached the Brenta by 11:00 AM.

The Red mobile division moved at 1:30 AM in three columns, as shown on the map. The right column was composed of cavalry, the center column of Bersaglieri and the left column of motorcycles and mechanized units. This column constituted a left flank guard. Liaison between the columns was maintained by motorcycle detachments. Red aviation destroyed the bridges over the Brenta, the Piave and other rivers in order to delay Blue advance.

At 7:00 AM, 3 August, the Blues reached the Piave and commenced the crossing under smoke screens, the operation requiring several hours, during which time the Blue columns were repeatedly attacked by Red aviation.

The Reds crossed the Livenza in two places, the Bersaglieri commencing its crossing also at seven o'clock. The Red mission remained unchanged: to reach and cross the Piave.

Shortly after seven o'clock the Blue reconnaissance detachments had reached the general line: Codogna — Orsago. (Fig. 3) From this time on, the veil was lifted and information was given to both sides.

Blue Plan: To make the main effort in the center, maintaining security detachments on both flanks to screen movements and prevent reconnaissance by a highly mobile enemy.

Red Plan: The Red command decided to stop the Blue advance with a frontal attack by the Bersaglieri against the enemy center, on an extended front, and by an enveloping maneuver as follows: in the north, with a cavalry regiment supported by artillery; in the south, with one cavalry regiment,



FIGURE 3

Situation 3 August and Plans of Attack for 4 August

supported by artillery, some tanks and a company of bersaglieri; still farther to the south, with a small mechanized unit.

Early in the afternoon of the 3d, contact was established along the general line indicated on the map. The combats on this day were undecisive and weak.

On 4 August the Blues attacked to the south while the Red bersaglieri attacked to the north. Red cavalry was maneuvering against the Blue left flank; Blue aviation bombed the bridges over the Livenza. The rough terrain favored the Reds, who being more mobile, could fight isolated combats. However, the more powerful, although slower Blues, succeeded in reaching the Livenza to the southwest. Towards noon, the Priula bridge,

held by weak Blue forces, was captured by the Red cavalry, which was now in position to attack the enemy's rear and trains.

The maneuver was terminated at this point.

It appeared evident that the Blue motorized division, as organized, cannot by itself, fight an engagement. Due to its comparative lack of mobility, this powerful large unit requires protection and information of the enemy well in advance. Its flanks and rear must be protected, particularly by units provided with automatic arms for antiaircraft and antitank defense. Guadalajara showed it.

The Red fast division proved to be extremely mobile, and little exposed to ground or air attacks. The cavalry and the cyclists can negotiate difficult terrain, furnish security for the division, and engage and break off combat with ease. Strongly motorized units that must confine themselves to roads are greatly handicapped in this regard.

The Italian command has made plans for the use of the two types of divisions and each corps will have a fast division of the Red type and one or more motorized divisions of the Blue type.*

JAPAN

Imperial Headquarters:

On 18 November 1937, Emperor Hirohito approved the creation of an "Imperial Headquarters," presumably to consolidate Japan's government in a centralized administrative body with sweeping powers. "This action was taken in order to concentrate the military forces for the so-called long-term hostilities, believing this necessary to place the organ of supreme command on a wartime basis."

Imperial headquarters were created by Japan during the Chino-Japanese War of 1894-95 and during the War with Russia in 1904-05. Both times army and navy commanders were united and all government came from them.

(Associated Press)

Declaration of War:

The Conservative elements in the Cabinet submitted at an extraordinary Imperial Conference held in Tokyo on 7-10 January, the following list of arguments against a declaration of

*NOTE: The Italian Army has at present, according to reports, three fast divisions and three motorized divisions.

war by Japan which, for the time being at least, has proved effective:

(1) In view of general conditions an official declaration of war would be untimely.

(2) Such action would hamper Japan in obtaining needed supplies of raw materials and finished goods, such as automobiles and airplanes.

(3) Entanglement with Britain and the Soviets at the present time would be extremely risky.

(4) Every precaution must be taken to prevent the United States from invoking the neutrality act.

(5) After a month or two of continued warfare on the same basis as present, Generalissimo Chiang Kai-shek is likely to reconsider Japan's peace terms to save China from complete dismemberment.

After long and bitter argument, the imperial conference finally agreed to submit its program to Emperor Hirohito.

In advising the emperor of its decision, the conference pointed out that if Japan avoids a declaration of war, she will be in a much better position to deal with Chiang Kai-shek at a later date and at the same time avoid open condemnation by the world as an aggressor.

(*International News Service*, 11 January 1936)

Budget:

The government has decided to divide the 1938 budget into two parts: military and ordinary. In framing the budget the Treasury Department, according to Domei (Japanese News Agency) estimated an additional expenditure based on continuance of the war in China until 1939. This does not mean that an active war is expected to last until then, but the Japanese armies must be maintained in China, at least until 1939. War is costing Japan huge sums daily, in excess of her earning power.

(*New York Times*, 22 January 1937)

Army:

Emperor Hirohito approved last November the promotion of about 12,000 army officers, which military men said would definitely strengthen the army command for the fighting in China. Two lieutenant-generals rose to the ranks of full generals, 14 major-generals became lieutenant-generals, and 32 colonels became major-generals.

Manchukuo:

The Italian government on 29 November recognized the puppet state of Manchukuo and proclaimed the intention of establishing a legation at Hsinking. Italy is one of the very, very few nations that have recognized Manchukuo.

A \$10,000,000 credit for the purchase of German goods has been extended to Manchukuo by the firm of Otto Wolfe at Cologne. Manchukuo's Central Bank guarantees the credit, which will be amortized in semi-annual payments ending in 1944. The credit finances purchase of equipment for hydro-electric power works, coal distillation plants, iron smelting and steel works and other productive enterprises.

MEXICO

The regular army in 1936 had a total strength of 47,076 officers and men and consisted of 50 battalions of infantry, 40 regiments of cavalry, 2 regiments of military police, 2 marine corps, 2 regiments of artillery and 3 detached companies.

The navy consists of one coast defense vessel of 3,162 tons, 7 gunboats, 10 coastguard patrol vessels and some smaller craft.

(*Statesman's Year-Book*, 1937)

NETHERLANDS

The Dutch military service law was amended 21 December 1937 by a vote in the Chamber of 63 to 32. The annual contingent which in the past has numbered 19,500 will be increased to 32,000. After 1943 it will be set at 27,400. The length of service will be eleven months.

The purpose of the new law is to increase the standard of training of officers and men and insure the security of the frontiers.

(*Le Temps*, 16 December 1937)

Holland is rushing development of a large air and sea force to defend the rich Dutch East Indies. Substantial strengthening of the Netherlands Indies' defenses has followed urgent pleas from residents of those fertile islands. Recently there was forwarded from Batavia to Amsterdam a petition bearing 50,000 signatures urging immediate modernization of the island's military defenses.

Responding to these appeals, Holland is rushing the latest types of planes, as well as submarines, destroyers and other surface craft to safeguard her lucrative possession from possible attack.

Expansion of air defenses of the Netherlands Indies is being pushed ahead as fast as possible, according to Lieutenant Colonel A.D.C. van Oyen, Commander of the Netherlands Indies Army. The existing squadron was to be strengthened with twenty-six Glenn Martin bombers.

Army:

At the opening of the Dutch Parliament, Queen Wilhelmina declared that the state of world tension and the danger of great complications necessitated the immediate strengthening of Holland's defenses, both at home and in the Dutch East Indies.

The annual quota of conscripts has been increased from 19,500 to 32,000. A light division is to be formed. This will include cyclists, motorcyclists with machine guns, motorized antitank guns, motorized and horse artillery, armored-car units and a regiment of light tanks. Divisional reconnaissance groups, attached to each division, will be composed of cyclist companies, armored cars and one squadron of horse cavalry.

(Journal of the Royal United Service Institution, November 1937)

Navy:

The naval estimates for 1938 made provision for a fourth cruiser and one torpedo motor boat. It is expected that the construction of the cruiser will take about three years.

The new measures now before the Netherlands Parliament contemplates the expenditure of \$20,800,000 for expansion of the Navy. Defenses will be also provided for Borneo oil fields, establishment of submarine and seaplane bases at New Guinea, while new bombers and flying boats will be sent to Java.

(U.S. Naval Institute Proceedings, December 1937)

Naval Aviation:

The Naval Air Force is an important factor in the defense of the Netherlands East Indies, and seaplanes are extensively employed in reconnoitering the waters of New Guinea and the Netherlands archipelago. They are specially useful in supervising fisheries.

(Journal of the Royal United Service Institution, November 1937)

NICARAGUA

All government salaries will be doubled as of 1 January 1938, to meet the higher cost of living and the depreciation of the cordoba, according to announcement by the Finance Minister, Jose Benito Ramirez. The exchange rate is now three or four cordobas to one American dollar.

(New York Times, 6 January 1938)

NORWAY

Merchant Fleet:

Norway occupies fourth place in the world's merchant tonnage, and at the end of last year her merchant fleet consisted of 1,377 steamers with a tonnage of 1,950,000; 480 motor ships of 2,100,000 registered tons and two sailing ships; 12.6% of the ships are under five years old, and 51.1% by tonnage are motor ships. The tanker fleet included 45 steamers and 164 motor ships with a total tonnage of 1,457,727.

(Journal of the Royal United Service Institution, November 1937)

PANAMA

Tolls collected on vessels passing through the Panama Canal amounted to \$23,950,072.95 in 1937 as compared with \$23,531,581.92 in 1936. There were 5,542 vessels cleared, while 5,487 cleared the canal in 1936.

(New York Times, 5 January 1938)

PARAGUAY

Two attempts to overthrow the Paiva regime and return Colonel Franco, of Chaco war fame, as dictator have been unsuccessful. The present Government gained control in August 1937.

PERU

A contract has been signed by the Government with the Frederick Snare Corporation of New York, Havana and Lima calling for the expenditure of \$5,500,000 for the construction of

a new port at Matarani, Southern Peru and the extension of the existing port works at Callao. Matarani, which is located about fifteen miles north of the port of Mollendo, will replace Mollendo as the Pacific terminus of the Southern Railroads of Peru, which now serves the Arequipa-Cuzco-Lake Titicaca region and connect with La Paz, Bolivia, on the through rail to Buenos Aires. Mollendo is on an open roadstead, whereas Matarani is on a well-sheltered bay.

(*New York Times*, 7 January 1938)

POLAND

The work on the fortification of Hela Halvon is progressing rapidly and will be completed within a year.

(*U.S. Naval Institute Proceedings*, December 1937)

PORTUGAL

Portugal with the size of Maine, has a colonial empire three times the size of Texas, encompassing nearly 10,000,000 people and almost a million square miles. It includes three hefty slices of Africa, four well-settled clusters of islands in the Atlantic, two choice bits of India, half of the East Indian isle of Timor and the Chinese City of Mocao, near British Hongkong.

Recently the army held its first war games in ten years.

Portugal's navy consists of a force of 6,000 sailors, manning antiquated ships of small tonnage, scattered about her globe-encircling colonial ports.

(*Literary Digest*, 20 November 1937)

RUMANIA

Tanks:

In accordance with the recommendations of General Gamelin, French Chief of Staff, who recently visited Rumania to investigate the military situation, a factory is to be constructed in Rumania with French capital for building army tanks; and France, in the meantime, will deliver a certain amount of tanks and artillery which will be paid for with Rumanian oil and gasoline.

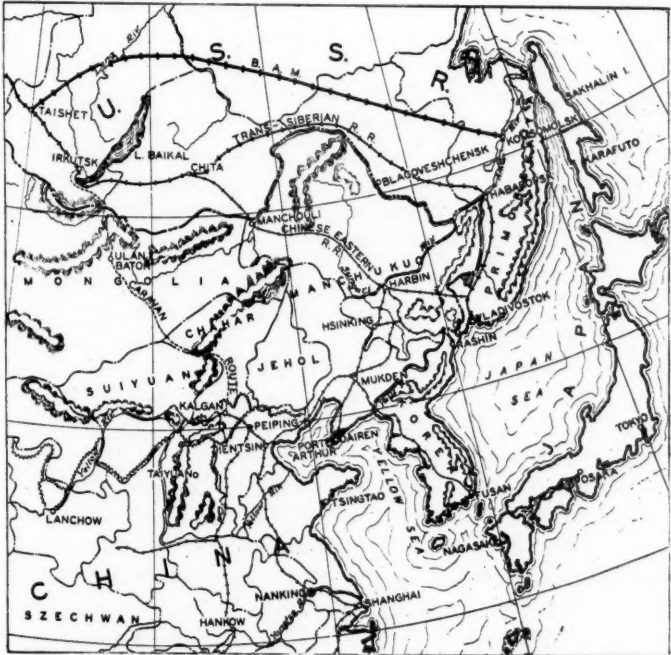
(*New York Times*, 11 December 1937)

RUSSIA

The organization plans of the Red Army contemplate a program of defense on two fronts a thousand miles apart. The so-called Far Eastern Province requires a self-supporting army, with its own technical and supply bases. This Far Eastern Army is really three armies with headquarters at Khabarovsk, Chita and Ulan Bator and is designed to be self-sustaining and self-sufficient.

Completion of a new double-tracked railroad stretching nearly two thousand miles across Eastern Siberia was announced on official broadcast, December 1937.*

Supplementing the Trans-Siberian, the new road will vastly augment Russia's military strength in case of war on the shores of the Pacific.



RUSSIAN RAILWAYS IN THE FAR EAST

*Other reports state that this railway is only two-thirds completed and that it will not be fully completed before 1940.

Constructed at top speed and with the utmost secrecy, the line known as the Baikal-Amur-Magister (BAM), links Taishet, west of Lake Baikal with the Pacific coast.

Leaving the Trans-Siberian at Taishet, it branches north-eastward passes through important gold, iron and coal regions to the new city of Komsomolsk near the coast, and there divides into three parts. The north branch proceeds to Nikolaievsk, the eastern extension goes a short distance to a new port opposite Sakhalin Island, and the southern line points Komsomolsk with Khabarovsk, and continues on to Vladivostok.

During the Russo-Japanese War of 1904, lack of adequate facilities for the transportation of troops and supplies across Siberia proved a fatal weakness to the armies of the Czar. Attempting to remedy this serious military defect, Soviet authorities finding their relations with Japan growing progressively more tense, four years ago embarked upon the construction of the BAM. The railroad, which parallels the Trans-Siberian some 300 miles to the north, was constructed with the aid of many thousands of political prisoners of the secret police.

In addition to its military value, BAM is expected to be a tremendous commercial asset to Siberia. Passing through a region rich in minerals, timber, farm lands and fur-bearing animals, it will open up a great tract of Eastern Asia for systematic exploitation and colonization.

(Press Reports)

Although military statistics are kept secret, foreign observers estimate the Red Army strength to be about 1,400,000 men, of whom possibly 550,000 are fresh conscripts ranging from twenty to twenty-two years old. The conscripts in the 1937 class, twenty to twenty-two years of age, comprise about half of the million men examined.

Before the new system of drafting was introduced last year, compulsory military system began at the age of twenty-two. According to Russian authorities, this age was too far along in life to begin carrying a gun and a progressive reduction of the army age, therefore, was begun so that the draft age would be nineteen years by 1940. Since service is for two years in the infantry and three to four years in the technical branches, the Russian soldier eventually will be no older than twenty-three when he returns to civilian life.

(Associated Press, 27 December 1937)

Cavalry Division:

The cavalry division consists of division headquarters, 4 cavalry regiments, a horse artillery regiment (3 battalions of 2 batteries each), a mechanized battalion (10 tankettes, 16 tanks and 16 armored cars), a signal battalion of 2 companies, a pioneer squadron of 3 troops, a chemical platoon, medical and veterinary services.

Rations:

The following rations are provided for ground troops, in addition to the emergency rations carried in the haversack:

Carried by the individual.....	1 day's ration
Carried in the battalion train.....	1 day's ration
Carried in the regimental train.....	2 days' rations
Carried in the division train.....	2 days' rations

Tank Tactics:

The Russian Army has probably the largest tank force in the world. According to Major Sidorski (who was Polish Military Attaché for some time in Moscow, and whose book "Anti-tank Defense" has been translated into several languages), the Red Army has the following types of tanks:

The Light Vickers Tank (6.7 tons), armed with a 47-mm gun and one M.G., or alternatively with two M.G.s.

The Light Christi American tank of 7.8 tons (40 m.p.h. on tracks and 68 m.p.h. on wheels). Armament not yet decided upon.

The Vickers Medium, Mark II.

The Carden Loyd, Mark VI.

And lastly, the Mali Sovetski, a Russian-made vehicle of 6 tons, carrying a 37-mm gun and one M.G., and having a speed of 16 m.p.h.

The official Field Service Regulations of the Soviet Army, 1936, enunciate the general principles for the employment of tanks, which may be used during the offensive as follows:

(1) For combined attacks with infantry.

(2) In an independent role, involving penetration into the depth of the enemy position, in conjunction with the action of infantry and artillery on the main battle front.

(3) For combined action with cavalry on the flanks.

(4) For action when forming part of mechanized formations, on the flanks, or in pursuit and exploitation.

According to the Field Service Regulations, the primary role of tanks is the forcing of a path for advancing infantry by suppression of the enemy's fire-power and destruction of his wire, and therefore the main tank force must be allotted to close support of the infantry. Normally one tank battalion will be allotted to a division (12 battalions) for close support purposes, and tanks will only be available for other roles in cases where the division is already allotted one battalion of tanks or where the division has definite fire superiority.

Where it is possible to allot tanks for other roles, the first consideration should be given to the formation of distant action echelons which should be directed against battery areas and rear organizations. Such echelons should each be not less than one company in strength, and should be launched, where possible, around a flank. From this it would appear that, in addition to each division having a battalion of infantry tanks, there will be units of faster-moving vehicles available for distant action.

Where it is possible to allot three to five tank battalions (150-250 tanks) to a division, the three-echelon tank attack is suggested as follows:

(1) Close support group for close support of the infantry.

(2) Further support group for subjugation of machine guns and antitank guns.

(3) Distant group to be directed against battery area of the enemy and also against centers of control, reserves and supply units.

It is claimed that the three-echelon attack insures a simultaneous blow throughout the whole depth of the enemy's position, and that such an organization is essential to insure success, since the advancing infantry is met in modern battle, not only by the weapons of the enemy's forward positions, but also by fire from machine guns sited in depth, firing from defiladed positions and by indirect fire, which the artillery observers of the attackers cannot see and, therefore, cannot either neutralize or destroy.

(From *F.S.R. Soviet Army 1936* and *Royal Tank Corps Journal*, January 1938)

SALVADOR

By Executive Decree dated 27 October 1937, the "Course for Service in the War Department General Staff," which is the equivalent of our Command and General Staff School, has been transferred to the Academia Militar. This school is distinct from the Escuela Militar which is known as Salvador's West Point.

SIAM

During the past year Siam has strengthened her diplomatic relations with Japan; however, she has begun to acquire a navy of ambitious proportions for a nation of Siam's resources. It is reported that two small destroyers have been purchased from Italy and five more naval ships were to be delivered by Japanese navy yards some time last September. Three of the ships built in Japan are patrol boats and the other two will be used as training ships.

(United Press)

SWEDEN

Navy:

After prolonged discussion, political and technical, the Swedish Riksdag has finally approved a five-year program of naval expansion, the annual cost of which will average close on \$10,000,000 — more than the highest naval budget of that country since the war.

The new program includes a division of cruisers of 8,000 tons, armed with six 8-inch guns apiece; 3 coast defense ships, presumably monitors; a division of seagoing torpedo boats; 12 high-speed motor torpedo boats, and a parent ship for submarines.

The administration of the Swedish Navy is to be reorganized and the fleet divided into two forces, one of which will be stationed in the Baltic and the other on the west coast. While the new Swedish program may appear modest in comparison with the standard of leading naval powers, it must be realized that an addition of say three 8-inch gun cruisers to the Swedish Navy has a much greater relative significance than would a similar addition to the British fleet, because the percentage of increase is so much higher in the former case.

(U.S. Naval Institute Proceedings, December 1937)

Germany obtains more than 50% of her total ore imports from Sweden; Swedish ore being the backbone of Germany's armaments industry.

(*Foreign Affairs*, January 1938, page 349)

SWITZERLAND

The Swiss Field Army comprises Army Troops and three Corps of nine divisions, four mountain brigades and extra units of frontier defense forces.

The strength of the Field Army is 250,000 men; the strength of the Services of the rear, 200,000, giving a total mobilization strength of 450,000 men or approximately 11% of the population.

Enlisted men are classified as follows:

The Elite.....	ages from 20 to 32 years
Landwehr.....	ages from 33 to 40 years
First Ban.....	ages from 33 to 37 years
Second Ban.....	ages from 37 to 40 years
Landsturm.....	ages from 41 to 48 years

It is the duty of every man between the ages of 19 and 48 to defend his country. For the whole of this period he is organized into a militia. Unlike the conscript armies of Europe, the Swiss Army does not demand a long period of full time service at an age when young men are trying to get a footing in the professions of life. They serve full time only from two to three months, according to the arm of service. After that, they have to put in so many attendances a year. Once a year they must attend annual training from seven to sixteen days, according to circumstances.

Up till the age of 32 a man is considered to be a line soldier. After that age he passes to what might be called partial reserve, into the Landwehr from the age of 33 to 40, and then into the Landsturm for the rest of his service.

The Army is organized into six divisions, most of which are apportioned stretches of the frontier to defend. The divisions are organized on modern lines, some of them being mobile. There are cyclist battalions and also mountain brigades especially trained and equipped for service in certain districts.

Industrial Mobilization:

A bill was submitted to the Federal Assembly on 9 November 1937 designed to furnish the legal basis for measures to be taken to assure the Army and the population with indispensable supplies in case of war.

Maneuvers:

During the recent maneuvers the new "light" brigades, composed of horsed regiments, cyclists and special units, were employed. The use of such formations was specially tested. The brigades were found advantageous, but they possessed neither weight nor fire-power to make any serious frontal attack; they are better suited for reconnaissance and flanking attacks.

(*Cavalry Journal* [British], January 1938)

TURKEY

The Turkish Cabinet in special session approved on 9 January a bill asking a \$35,000,000 additional appropriation for rearmament. The Chief of the General Staff said the money was needed to build up the air force in view of the present "obscure" international situation.

(*New York Times*, 10 January 1938)

URUGUAY

The infantry of the regular army is armed with the Mauser rifle; the field batteries have either Schneider or Krupp 75-mm guns. The National Guard is mainly armed with the Remington rifle.

(*Statesman's Year-Book*, 1937)

VENEZUELA

The naval force consists of 2 sloops, 3 gunboats, 1 transport, 1 hospital ship, 1 tugboat, 1 dispatch boat and 1 sailing vessel. There is a military and naval college, a school for military aviation, a training school for troops, and special courses for artillery and cavalry regiments.

(*Statesman's Year-Book*, 1937)

YUGOSLAVIA

The infantry is armed with quick-firing rifles of French pattern and those taken as booty from Austria Hungary; the artillery with French quick-firing guns (Schneider-Cault system) and those taken as booty from Austria Hungary, which are of various models.

(Statesman's Year-Book, 1937)

ABSTRACTS OF FOREIGN-LANGUAGE ARTICLES

This section contains abstracts of important articles from foreign military periodicals; the remaining articles for each magazine are listed in Catalog of Selected Periodical Articles.

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SUPPORT OF INFANTRY BY FAST TANKS AND ARTILLERY*

[L'appui de l'infanterie par les chars rapides et l'artillerie." By General Brossé. *Revue Militaire Générale*, June 1937.]

Abstracted by Major E.M. Benitez, Coast Artillery Corps

ROLE OF MODERN TANKS

During the World War, tanks were employed only in close support of the infantry on account of their slow speed. In the future, fast tanks will be able to neutralize, not only machine guns located in forward zones, but also automatic weapons emplaced farther to the rear. In the attack of a position organized in depth and protected by continuous and compact bands of fire, tanks will be employed for close supporting missions or as accompanying and supporting weapons, missions which are usually fulfilled by the 75-mm gun.

The use of modern tanks on a large scale will provide the possibility of launching the attack much more rapidly, since tank action requires far less time than that necessary for the

*In a recent indorsement, referring to this article, the Executive Officer, Office of the Chief of Infantry, U.S. Army, states: "The Chief of Infantry regards this exposition of the subject to be the best statement of tactical doctrine he has seen."

deployment of a considerable amount of artillery and the transportation of the necessary ammunition.

In order to operate successfully, tanks must be protected. Their advance will be opposed by antitank trenches, abatis, mines, artillery, tanks and antitank weapons. The artillery must open a passage for the tanks, blind enemy observation and neutralize any hostile artillery which may be concentrating its fire against the tank attack.

TANKS ON BROKEN TERRAIN

The technical characteristics of tanks and their vulnerability to the weapons enumerated above, impose certain definite limitations. Their efficiency will also vary according to the terrain, as follows:

1. Tanks can be stopped completely by rivers when bridges have been destroyed or are strongly defended by antitank weapons and artillery.
2. While capable of neutralizing automatic arms located on the outskirts of a village, tanks can be stopped if the entrances to the village are well barricaded.
3. Inability to lead infantry through woods.
4. Exposure to hostile artillery and antitank guns while advancing on forward slopes.

COORDINATED ATTACK OF INFANTRY, TANKS AND DIVISION ARTILLERY AGAINST A DEFENSIVE POSITION

In a position organized in depth with a continuous and compact fire system of automatic weapons, antitank guns will be located with a forward echelon near the main line of resistance, in order to stop the main attack before it penetrates the position, while other antitank guns will be echeloned to the rear, in a more or less dense system.

Tanks cannot fulfill two missions at once; that is to say, they cannot neutralize machine guns and destroy antitank weapons at the same time. Their primary mission today is the fight against the antitank weapons, because the ability of tanks to accompany the infantry and, later on, to support the attack, will depend entirely on the initial success against the antitank gun.

The antitank gun can be easily concealed, but as soon as it commences firing its position is disclosed by the flash. There

are two methods of attack, depending upon enemy information at hand.

1. When the exact gun positions are unknown: By artillery neutralization and destruction fires.

2. When the firing positions of the guns have been disclosed: By directing fires of all kinds against them, *i.e.*, artillery, infantry mortars, 37-mm, machine guns, automatic rifles and tanks.

Let us examine the essential characteristics of these two methods and the results to be expected from each.

a. Division artillery fire.—When the exact location of anti-tank guns cannot be determined from the map, the artillery must emplace its guns to cover certain obstacles or gaps. Thus, if the artillery fire is dense enough and covers fairly large areas, its effect, if not from the destruction point of view, at least from that of neutralization, should be important.

During the attack, the neutralization of antitank guns by means of a rolling barrage is out of the question, because the speed of modern tanks renders impracticable this type of fire.

Infantry will advance by bounds and the division artillery will employ successive concentrations, the concentration zones being separated by distances corresponding to the depth of the bounds which should be large enough to give the tanks sufficient maneuver space. Artillery fires should be in depth, and in order to secure the best results, the fire of all the guns must not be at once shifted to the next concentration, but some batteries must continue the neutralization long enough, if possible, to permit the tanks to reach the antitank guns before the enemy gun crews have had time to return to their posts from their shelters and open fire.

The action can best be regulated by means of a time schedule, the lift of artillery fire being calculated on the probable speed of tanks with a margin allowance sufficient to take care of speed reduction due to hits by friendly shells.

Infantry weapons will be unable to fire efficiently in zones covered by artillery fire, due to poor visibility; but once the fire is lifted they can cover well defined sectors firing on the flash of the enemy's guns.

b. Firing on known positions of antitank weapons.—Antitank weapons and automatic or semi-automatic guns of a high rate of fire, will employ short bursts followed by more or less prolonged periods of silence; therefore, when such a weapon is discovered and attacked it has already been in action. This method

does not insure absolute protection, since it does not protect tanks against the effects of the first bursts, and consequently cannot be substituted for artillery neutralization fire which provides the basis for the protection of armored vehicles.

All weapons — mortars, 37-mm guns and machine guns — fire on known antitank guns. The fire should be of great density since antitank guns protected by shields and earthworks offer small targets. Furthermore, such weapons must be at sufficiently close range to secure their maximum rate of fire and accuracy. During each bound, it seems advisable to push forward a certain amount of arms of all kinds, which taking position near the line reached by the infantry, will be able to fire on antitank weapons during the next bound.

Since the fire of automatic arms has no effect on tanks, the latter can continue firing until they arrive at the immediate vicinity of their objective.

The artillery, being able to execute zone fire only, may be able to destroy but a small number of antitank guns, but if the concentration is sufficiently dense, it may be able to neutralize a large portion of them for a certain length of time. Infantry weapons, firing on known antitank weapons, will not be able to destroy them completely, but if the fire is dense and fairly well adjusted, it may neutralize them. The mission of tanks, therefore, will be to insure the destruction of the antitank weapons that have been neutralized by one or the other of the two methods discussed above. The fight against antitank weapons will require close cooperation between artillery and tanks on the one hand, and infantry weapons and tanks on the other.

The better protected and more powerful medium tanks will advance first, with the mission of discovering and destroying antitank guns. Accompanying tanks are light and vulnerable to antitank weapons and should not follow the medium tanks too closely; initially, their primary mission will be to concentrate on the automatic arms of the defense which will, undoubtedly, come into action once the medium tanks have passed.

c. Neutralization of enemy automatic weapons.—The fight against antitank weapons must be continued. This mission will be carried out by the protecting echelon of the medium tanks, and by all infantry arms. The remainder of the medium tanks and all the accompanying tanks, will concentrate their efforts against enemy automatic arms, the former acting against the more distant ones, the latter against the closest ones.

d. The infantry advance.— It is only when the tanks have sufficiently neutralized the automatic weapons that the infantry moves out. It is desirable that the entire line move forward at the same time, or at least, that part of it corresponding to a terrain compartment, which is generally a regimental sector. Movement forward should take place according to the situation, either by battalion or company.

e. Advance by bounds.— (1) *Depth.*— From the infantry point of view, bounds should be long enough to allow attacking troops to advance as far as possible and at the same time maintain contact.

From the tank point of view, bounds should be long enough to give medium tanks sufficient maneuvering space, yet not too extended, since tank detachments deployed on only one line cannot, regardless of speed, neutralize automatic arms at a depth greater than from 300 to 450 yards. In order to attack larger areas, several echelons would be necessary, requiring a number of tanks which could only be obtained under very exceptional circumstances.

Lastly, the depth of bounds should correspond to the fire of the arms charged with the protection of tanks: mortars, 37-mm guns, machine guns, and automatic rifles of front-line elements.

Terrain will exercise a preponderant influence and bounds will be regulated according to compartments. Best results are obtained when the depth of the bound is between 650 and 1,100 yards. Protection against distant machine guns, outside the "closed field," must be furnished by the artillery.

(2) *Execution.*—The bounds may be divided into three successive operations:

(a) Fire against antitank guns.

(i) Artillery fire carried out by successive concentrations according to a prescribed time table.

(ii) Medium tanks, divided into a mobile echelon and a protective echelon, move forward, following closely the artillery fire.

(iii) Infantry arms of all categories go into action at the same time as the medium tanks, both firing against the antitank guns.

(iv) Once the medium tanks have gone through, the accompanying tanks will engage those enemy automatic weapons that have not been neutralized.

(v) A certain number of antitank guns which have not been put out of action will concentrate on our light tanks; in turn, they must be counterattacked by our infantry weapons.

(b) *Neutralization of enemy automatic weapons.*—The medium tank forward echelon attacks the automatic weapons of the defense, while the protective echelon and our infantry weapons attack any enemy antitank weapons which may resume firing after the first tank echelon has gone through.

(c) *Infantry advance.*—After the enemy's antitank weapons have been silenced and his automatic arms neutralized as determined by the advance of our tanks, the infantry moves forward by battalions or by companies, reaching successive objectives in the wake of accompanying tanks.

(3) *Zones of action.*—All units must be assigned clearly defined zones of action.

DELAY OF A TANK ATTACK AGAINST A DEFENSIVE POSITION

A tank attack supported by modern tanks against an adversary holding a position, organized in depth with a system of continuous and compact bands of fire, must be supported by powerful artillery. Heavy howitzers will be required to open breaches in obstacles and mine fields; light and heavy artillery to neutralize antitank weapons and deliver certain protective fires and long range artillery for counterbattery. Large quantities of ammunition will be required. It is evident that the artillery will require the maximum time to carry out its preparations and for this reason it will determine the time of the attack.

ATTACK AGAINST A CONTINUOUS POSITION WITHOUT DEPTH — TACTICAL SURPRISE — EXPLOITATION OF THE SUCCESS

a. *Attack against a position without depth.*—In order to capture a weakly held position, with no reserves, and consisting only of a thin, continuous line of fire, it will suffice to launch the attack, at a favorable point, supported by tanks and reinforced by fairly strong artillery. The artillery will be particularly valuable during the second phase of the offensive after the front has been broken and the antitank defense has been dislocated. The widening of the gap, thanks to the tanks, will be a much easier operation.

b. *Tactical surprise.*—The benefit derived from the power and mobility of tanks will be much more decisive in an attack

against a force incompletely organized, particularly, if caught in the midst of a maneuver or deployment. For example, during an approach march, a force hit by tanks while still in column or only partly deployed, will be at a great disadvantage and face serious consequences.

Under such conditions, the commander must decide whether or not he is justified in making an exception to the principle of coordinated attack, by balancing the losses and risks against the results that may be expected. If the commander decides to be bold, part of the medium and light tanks and the attacking troops should continue to cooperate in liaison; however, if the enemy is partly disorganized, the methodical advance by bounds may be abandoned and the forward movement decentralized down to the battalion.

c. Exploitation of success.—When hostile resistance is partly broken and scattered, modern tanks may be employed to execute vigorous pressure so as to prevent the enemy from reestablishing himself. The objective of the advance tank echelon may then be the hostile artillery.

Field batteries can, to some extent, provide their own protection, but they will be in great danger if attacked by fast tanks from all directions. Heavy batteries, if not defended by anti-tank guns, will be at the mercy of tanks.

Retreating infantry may be outflanked and overrun by tanks. Reserves surprised on the march run the risk of being destroyed.

Attacking units protected from distant machine guns by medium tanks and from close automatic weapons by the accompanying tanks, will quickly destroy all hostile resistance. Exploitation will be conducted with a violence and speed unknown on the battlefields of the Great War.

CONDITIONS FOR USE OF FAST TANKS

Fast tanks are particularly suitable for operations against troops in movement or only partially organized. On the contrary, a defender solidly dug in, possessing numerous and well emplaced antitank guns, protected by obstacles and mine fields, will make the role of tanks, operating at a certain distance in front of the infantry, very difficult and will inflict heavy losses. We may conclude, therefore, that the use of tanks in depth will be most successful during preliminary operations, surprising the enemy while he is maneuvering or organizing his preparations

and during the exploitation when his tactical plans have been shattered.

During a combat designed to pierce the enemy front, the neutralization of distant automatic arms and antitank weapons should be an artillery function. The commander should only assign the tanks necessary for direct support of the first line, keeping in hand important tank reserves to be utilized at the proper moment for a vigorous exploitation.

CONCLUSIONS

1. In the future, due to the enormous amount of automatic arms available to the defense, attacking infantry can succeed only if heavily supported, even more so than was considered necessary during the last phases of the World War.

2. As in 1918, the commander must concentrate the majority of his material means, so that all large units may be amply equipped for a powerful continuous effort. Other parts of the field of battle will, for the time being, be of secondary importance and troops therein will remain on the defensive or execute strategic withdrawals.

3. Units receiving offensive missions and executing main efforts will be provided with a powerful number of modern tanks, though artillery will provide the only infantry support for a majority of the others.

4. The form of combat in offensive operations will depend upon the presence of tanks, whether or not the enemy is concentrated or scattered, whether or not his position is completely organized and whether or not it is expected that he will take the offensive.

5. Where armies have only artillery as infantry support and are required to break through a continuous and deep front, well supplied with automatic arms, combat will take place under the same conditions as those of 1918. There will be a long artillery preparation and, to a certain extent, limited objectives to avoid the formation of pockets.

6. When the attack is directed against a defensive position organized in depth and modern tanks are available, the artillery preparation will be shortened. Tanks must be protected by the artillery from antitank weapons. As soon as the enemy is overcome and becomes partially dislocated, fast tanks, finding only a wavering antitank defense, should make possible an exploitation of a rapidity hitherto unknown.

7. Against a weak adversary, the opening of a breach and its enlargement, will be comparatively easy with the aid of fast tanks.

8. The success of a breakthrough is the prelude to outflanking and turning maneuvers, which, followed by enemy reaction, will create a real war of movement.

9. An aggressor well supplied with armored vehicles, who obtains tactical surprise and falls upon a disconnected force, has an excellent opportunity to upset the hostile advance, cause disorder and prevent the enemy for a considerable time from reestablishing himself in a strong defensive position.

10. It follows, that to stop the advance of tanks requires at all times a well coordinated, continuous and powerful anti-tank defense. The advance will be from battlefield to battlefield, since belligerents will be equipped with vehicles possessing speed, armament and protection suitable for surprise attacks. The advance guard echelon must, therefore, be supplied with numerous antitank weapons in order to protect the main body from attack by armored vehicles.

11. Large armored shock units composed of tanks of various types, infantry in cross-country vehicles and automatic guns, intervening in the battle by surprise — either against columns on the march, or after an enveloping maneuver, or after the breakthrough of a weakly defended sector or against the flanks of a deployed army — may produce results radically different from the frontal attacks of the World War.

12. In short, an attack against a well organized position, defended by weapons of all kinds, can only succeed when the infantry is directly or indirectly supported by an enormous quantity of matériel which burdens and slows up the operations. On the other hand, against an adversary who is more or less in disorder, or who has been surprised in the process of maneuvering, modern tanks utilizing power and speed, will break through the wavering enemy lines, while the infantry, in close liaison with the rest of the tanks, will rapidly overcome sporadic resistance and obtain without delay final mastery of the battlefield.

CONSIDERATIONS ON THE OFFENSIVE

["Considérations sur l'offensive." By Major Krebs. *Revue Militaire Générale*, September 1937.]

Abstracted by Major R.G. Tindall, Infantry

The modern offensive lacks sufficient power and sufficient speed to be effective. Such is the rather sober conclusion of Major Krebs of the French Army in this article.

This situation does not please him at all and he demands that the French Army accomplish the impossible so that the next war, if it comes, will be short. Major Krebs does not dolefully predict that never again will armies be able to attack successfully; he merely states his firm conviction that with the weapons, equipment and troops of today, the offensive has little show of success against a strong opponent, and he suggests means of ameliorating the army's offensive capacity.

He first traces the history of offensive tactics and shows that whereas in antiquity a defensive attitude was nonsensical suicide, the development of firearms gradually changed this situation. Little by little frontal attacks grew more costly and less successful. However, the small size of forces permitted simple and effective maneuvers and obscured the fact that the defensive was growing in strength. The Prussian successes of 1866 and 1870 were due largely to the supine leadership of their opponents, but even victorious battles showed the difficulties of the attacker.

The lack of offensive capacity of modern armament became evident following the Battle of the Frontiers in 1914 when the Germans, having gained a tactical success, were unable to destroy the Allied forces. The offensive in 1914 not only lacked power — it lacked speed. It progressed at the rate of a marching man; the defense shifted to meet it at the rate of a motor truck or railroad train. It took von Kluck 15 days to go from the Gette River in Belgium to Senlis near Paris; Joffre shifted the VII Corps from Alsace on to the Somme to meet von Kluck in five days. The leader in the last war, if he had reserves, always had enough time to parry the blows of his adversary.

The tank allowed a breakthrough of the hostile positions but was not capable of exploiting success. Major Krebs considers that on 11 November 1918, modern war seemed like a struggle in which victory goes to that adversary possessing the

most means and who knows how to utilize them to wear down the opponent's means more than his own.

Major Krebs then examines the offensive capacity of the French Army of today and concludes it is insufficient. While improvements have been made in matériel, much remains to be done and the troops are far from having the value of 1914.

He notes that the French doctrine is prudently adapted to the capacity of the troops. He estimates that gaining contact with an enemy, from the time the troops leave route column will take four or five hours; to organize a minor operation, two hours; a reconnaissance in force or advance guard action, three or four hours; an important attack, two or three days. He insists that all this spells stabilization for time works for the defense.

However, Major Krebs points out that the hope of realizing both speed and power is not lost, and quotes paragraph 120 of the new *Instruction for Larger Units* (1937): "The development of motorization and cross-country vehicles as well as that of signal communications opens possibilities to maneuver which the importance of the masses to be engaged had caused to be lost. It permits a certain acceleration of the rhythm of battle to be envisaged."

Major Krebs discusses the question as to whether the era of the tank is over and concludes that it is not. However, the tank will not cause other arms to disappear. All arms should be oriented toward mechanization, because only thus can the preliminaries of battle be shortened and the powerful offensive means necessary to an attack be brought up rapidly. He also points out that the transportation of tanks by autogiro or plane should be studied, so that they can be taken across water lines quickly in an attack. He also demands a small, low built tank, easily hidden, and suitable for reconnaissance missions and gaining contact.

In the future, he believes that infantry should be a reinforced arm, the infantry — tanks, either at the regimental or division echelon. The tanks would have a triple mission, reconnaissance, antitank actions, accompaniment of the infantry. As soon as the high command can move on the battlefield, it must renounce the habit of written orders and making decisions on the map. The chiefs must command orally during the preliminary phases and follow the action from emplacements from which they can direct it.

Artillery must be placed on self-propelled mounts and be abundantly supplied with munition-transporting vehicles, and the cavalry must be provided with tanks with thicker armor than those it has at present.

Major Krebs concludes that the offensive equipment of an army will cost dearly but remarks that a ruinous war of attrition would be worse. At present the French Army has not the armament permitting it to adopt a wholly offensive attitude and therefore must be wise enough to form a front and adopt a defensive-offensive attitude, prepared to attack, but only if the enemy gives a favorable opportunity. An offensive attitude without the necessary means merely leads to sanguinary checks and at times to defeat.

The defensive-offensive attitude nevertheless should only be accepted as a temporary expedient which might result in avoiding incalculable consequences but which would not spare France the test of a long war of stabilization.

HAS STRATEGY CHANGED AS A RESULT OF THE WORLD WAR?

["Les formes de la stratégie ont-elles changé d'après l'expérience de la guerre mondiale?" By Field Marshal Werth, Hungarian Army. *Revue de l'Armée de l'Air*, September 1937.]*

Abstracted by Major E.M. Benitez, Coast Artillery Corps

The Russo-Japanese War left unsettled many controversies concerning the evolution of strategy in a war in which large masses of troops provided with modern equipment were employed. In the opinion of many, however, the methods used in that war were suitable for a war in the Far East only. The Austrian Colonel von Csicseric, who was an observer on the Russian side, stated that with large armies, complicated maneuvers and particularly the envelopment, were impracticable.

General von Schlieffen, on the other hand, maintained that the fire-power of modern armament prevented the decision by frontal attacks and made it more imperative than ever to resort to the enveloping maneuver. He also stated that the retreat of the enemy's army did not necessarily mean the end of hostilities, because compulsory military service and the productive

*NOTE: The original article by Field Marshal Werth was published in the June 1937 issue of *Wissen und Wehr*.

capacity of factories enabled the enemy to bring new combatant forces; therefore, it became necessary to formulate a war plan which contemplated the annihilation of the enemy's armies, reaching into the heart of the country and stopping the flow of replacements.

DEFENSIVE AND OFFENSIVE

Count Schlieffen, however, did not underestimate the defensive. His campaign plans on the Eastern Front contemplated a strategic defensive, which was to be followed by a successful tactical offensive.

The Austro-Hungarian plans of campaign visualized a defensive on the Balkan Front against Serbia which, unfortunately, was not carried out. In the World War both sides, almost since the beginning, carried out strategical offensives, even on secondary sectors such as Serbia, without regard to rears. The only successful strategical defenses were those of the German Eighth Army in East Prussia and of the Serbian Army. Offensives were launched, some of them with great superiority of means like some of the Russians, but they failed to annihilate the enemy. It was admitted that the defensive followed by the counterattack could match the offensive. Air forces and mechanized forces were not employed. The results of these unsuccessful offensives were to bring out the value of the strategical defensive on grounds selected in advance by the defense and on well prepared positions. This does not mean that the offensive should be abandoned in the future, because modern warfare requires the occupation of the enemy's centers. Air forces alone cannot hold them; this is always the function of the infantry. The assailant, however, must remember that an advance by a modern army complicates the supply problem to such a great extent as to cause a halt of the advance.

Future conflicts will probably have the following characteristics:

- a. The strongest side will still select the offensive in spite of new difficulties.
- b. Lacking very superior means, the attack will not be launched simultaneously at all points, but along certain strategically important directions, and on favorable tactical sectors.
- c. The advance will be interrupted more frequently than before due to the necessity of supply and reorganization of units.

d. Even during combat, there will be, for the reasons stated above, not one but a series of attacks limited in width and depth.

e. The weaker adversary, or the one playing for time, will resort to the strategical defensive.

COMMUNICATIONS

The supply facilities will play an increasing role. The World War showed the importance of means of communications. The Austro-Hungarian offensive in December 1914 against Serbia, along the Drina and the Save, was quickly blocked by the impossibility of supply, and also made possible a counterattack by two Serbian divisions which alone were sufficient to reconquer the invaded territory. On the other hand, the October 1915 offensive (Figure 1) was launched along

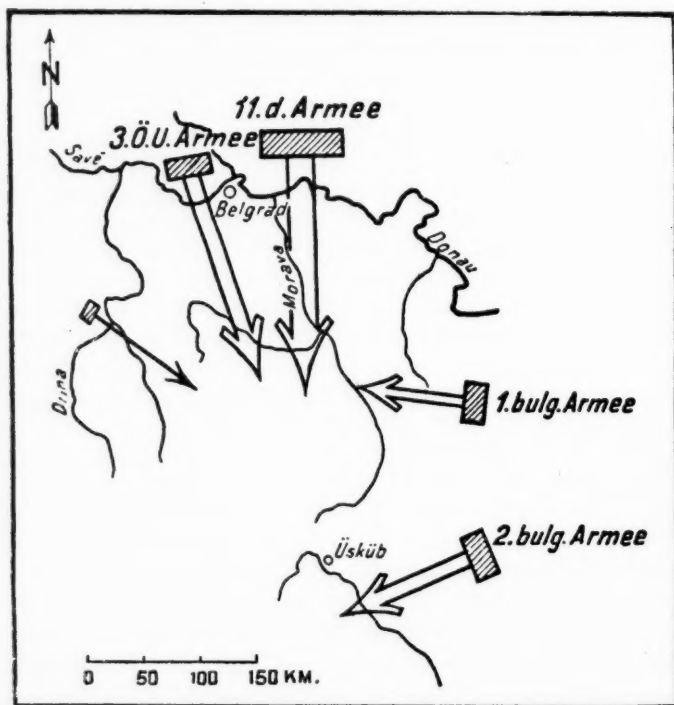


FIGURE 1
Austro-Hungarian Offensive, October 1915

the valley of the Morava, the resources and means of communication of which had been properly appreciated by the General Staff in peace-time studies.

The possibilities of movements have a special importance when the region in which these movements take place must be conquered by combat. This explains the failure of the great offensive launched by the Austro-Hungarian Armies at the beginning of 1915 in the Carpathians (Figure 2). The Russians

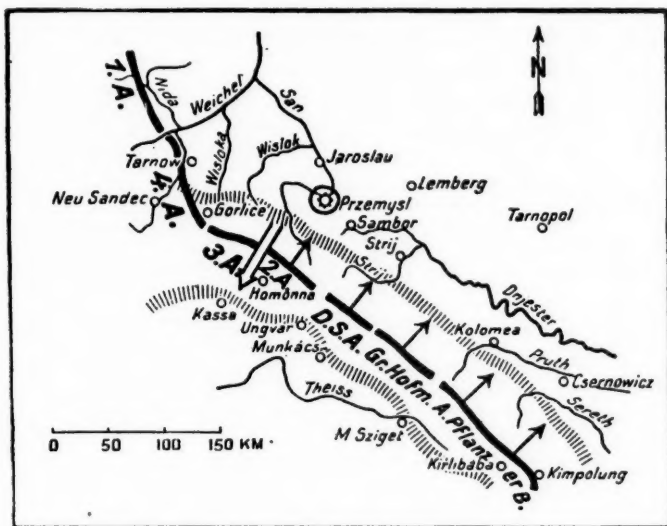


FIGURE 2

Austro-Hungarian Offensive in the Carpathians, early in 1915

had, moreover, committed the same mistake in the same terrain; General Brusiloff reports in his Memoirs that they lost there more than 500,000 men and that this terrible loss was the cause of the Russian subsequent defeat in Galicia and, in general, in their impossibility to win.

At the beginning of 1916, Marshal Conrad attacked the Italian Front on the Asiago sector, attracted by the great strategic possibilities of an advance at that point. (Figure 3) The offensive was blocked in this mountainous terrain.

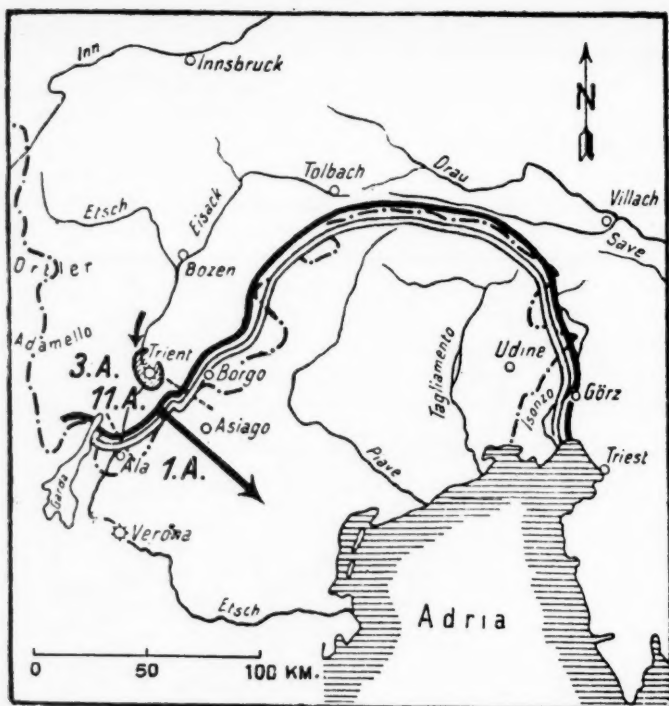


FIGURE 3

Marshal Conrad's Attack on the Italian Front, Asiago Sector

A few months later, General von Falkenhayn invaded Rumania, initially making his main effort in the direction: Brasso—Braila. (Figure 4) However, in spite of the weak forces opposing him, he had to give up his efforts in this mountainous sector and made his breakthrough further to the south, in the direction of Craiova.

Final example: (Figure 5) The Austro-German offensive, the most fruitful on the Italian Front, was not made in the Tyrol Sector, a region of immediate strategic importance but rather difficult to penetrate; it was made at Caporetto where the terrain was more favorable to the advance.

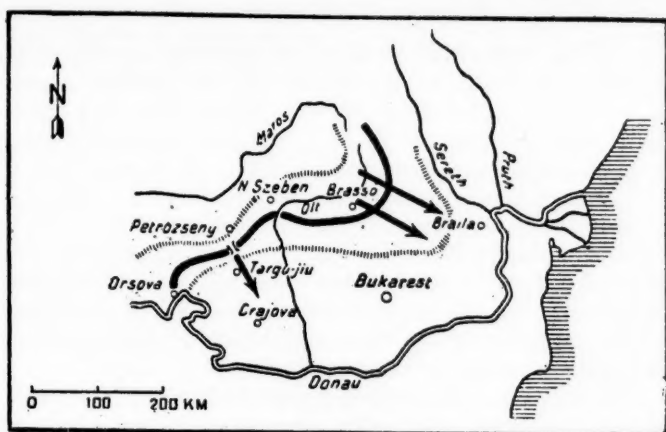


FIGURE 4
Invasion of Rumania by General von Falkenhayn in 1916

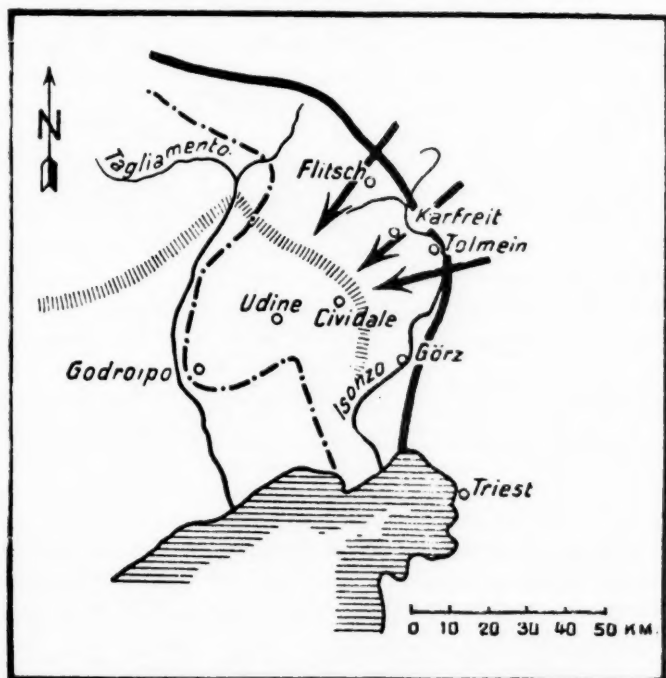


FIGURE 5
Successful Austro-German Offensive at Caporetto

INTERIOR OR EXTERIOR LINES

The maneuver along exterior lines has always been preached. Moltke, the Great, used to say that the concentration of separate columns on the battlefield was the best thing that a strategist could accomplish. He emphasized the danger that these columns might run of becoming engaged in battle separately.

Modern rapid means of transportation and air reconnaissance make it possible to avert this danger and to alert the separate columns; therefore, the maneuver on exterior lines presents great advantages today. On the contrary, the great objection to the maneuver on interior lines lies in the danger that it may fail under concentric efforts, before having decisively defeated the enemy at the selected point.

The success of Tannenberg (Figure 6) does not, in any way, weaken these conclusions. This battle, one of the most brilliant

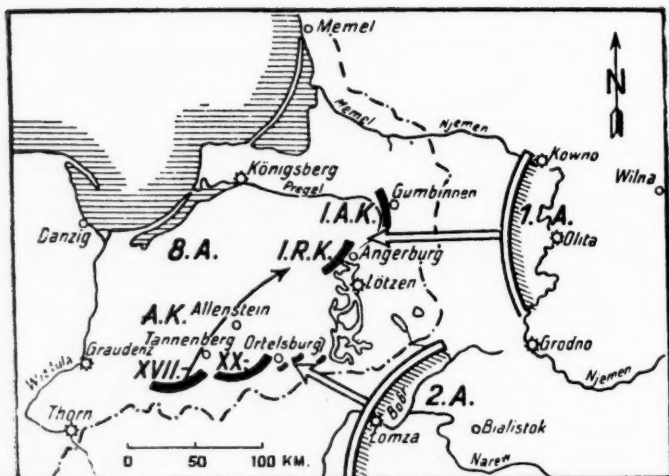


FIGURE 6
The Battle of Tannenberg

in military history, would have turned into disaster for the Germans had the Russian First Army not violated the most elementary combat principles in this situation, that is to say, relentless pursuit of the enemy.

An example of a battle of interior lines is the first Austro-Hungarian offensive in 1914 in the Carpathians (Figure 7) where

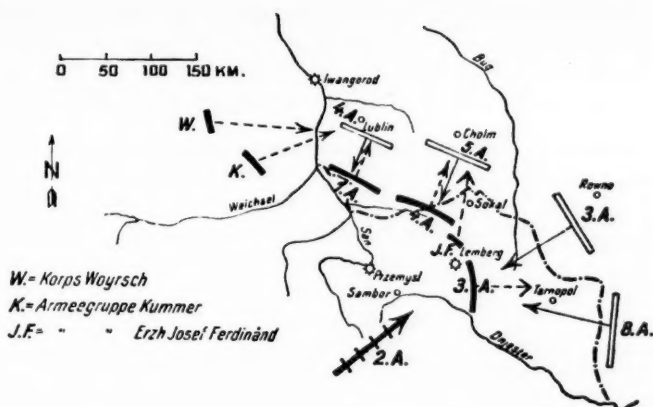


FIGURE 7

First Austro-Hungarian Offensive in the Carpathians in 1914

the Third Army was defeated at Lemberg by the Russian Third and Eighth Armies. It should be borne in mind, however, that this eccentric offensive was based upon the mistaken hypothesis that the Russian concentration was taking place slowly and behind schedule and that it would thus be possible to reach the Carpathians with ease.

The operations on interior lines have the only advantage of being able to concentrate forces against part of the enemy, while keeping the remainder of the hostile forces in check; however, the extension of the theater of operations must be sufficient to permit a decision in the attacked sector before the arrival of the enemy's reserves.

THE ENVELOPMENT

This was Schlieffen's pet theory. It was criticized shortly before the World War by General Daille in a book, to which General Ruffey gave his approval in the preface. General Daille favored the central attack.

Today motorized troops and air transportation have opened a new field to the strategy of the envelopment.

THE FLANK POSITION

This was von Moltke's favorite scheme. The adversary, threatened by forces against his flank, finds himself compelled either to attack them or to take important security measures.

At the beginning of the World War on the Eastern Front, there was an excellent opportunity to dispose the Austro-Hungarian forces (Figure 8) in position to strike in flank the bulk of the Russian Armies that were facing Central Germany.

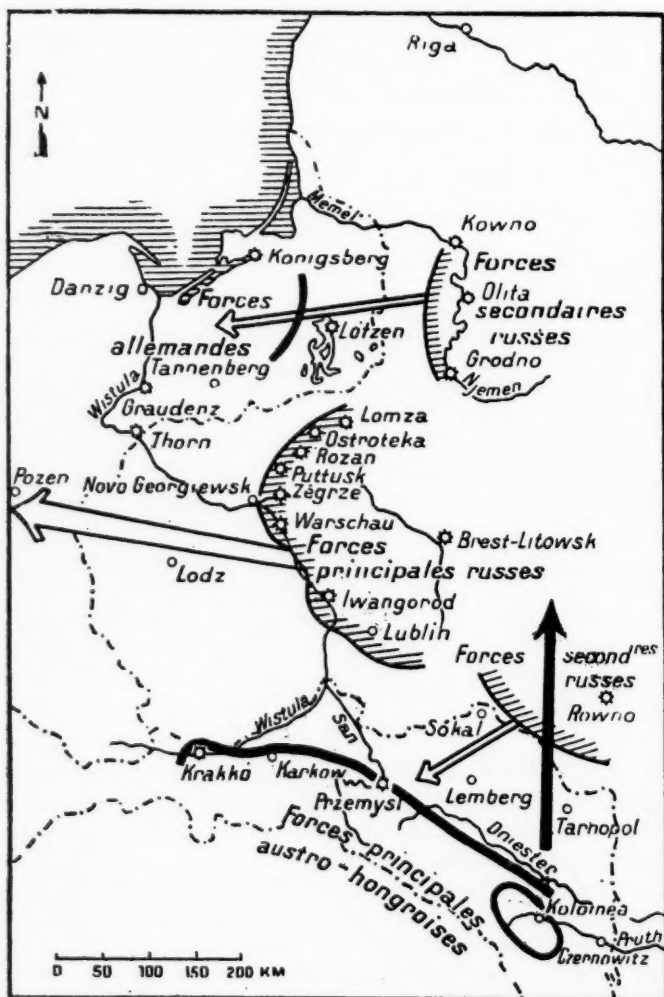


FIGURE 8
Position of the Russian and Austro-Hungarian Forces on the Eastern Front, respectively, at the Beginning of the World War

Unfortunately, General Conrad was an ardent advocate of the offensive.

CONCLUSIONS

The forms of strategy have not changed, but the conditions of their execution have been modified, and it would be dangerous to select one form in predilection to another. Moreover, it must be borne in mind that a future conflict will be greater in intensity and scope than anything seen heretofore.

Commenting on this article, P.E., who is apparently a strong air corps advocate, states that he believes that General Werth's conclusions are rather brief. Future conflicts, he claims, will again find that the essential forms of strategy are as unchangeable as geometrical axioms; nevertheless, the ever increasing use and possibilities of aviation will introduce elements that must be considered. Aviation will become stronger and stronger as the enemy of strategy. Already in 1914, aviation was disclosing enemy strategic movements; its efficiency was reduced later on due to lack of necessary means, mainly, speed and ability to fly in all kinds of weather. In 1918 aviation did not delay strategic movements because it lacked the fire-power and the capabilities that it possesses at the present time. Today, the strategist must decide the uses that he desires to make of aviation, such as: destruction or temporary neutralization of enemy air bases, paralization of the enemy's air forces by attacks against sensitive points, destruction of the will to fight of the enemy's population (Douhet's theory), or utilization of the advantages derived from the differences of speed of the land forces and the air forces, by creating an enormous central air mass in order to successively hammer the enemy on various parts of the front, and thus facilitate the advance of friendly forces.

The commentator of this article concludes that aviation is better adapted for strategic operations over extended fronts rather than over restricted ones; that aviation is more suitable and can produce better results in flank actions on exterior lines rather than in central attacks or in maneuvers on interior lines.

THOUGHTS ON THE SECURITY OF AN UNARMORED FORCE

["Réflexions sur la sûreté d'une troupe non cuirassée." By Captain Grimaux. *Revue de Cavalerie*, July-August 1937.]

Abstracted by Major L.K. Truscott, Jr., Cavalry

This article is a study of the employment of the division reconnaissance group* in missions of security where this unarmored element may have to make contact for its division with hostile armored forces.

In his introductory remarks, the author states that mobile armored arms progress so rapidly that the tactics of small units can hardly keep up the pace, and that while regulations are gradually brought up to date, additions are not sufficient; a new perspective is necessary.

He points out that unarmored forces — infantry, cavalry, artillery — exist, and that these unarmored forces must be prepared to make contact with and to protect themselves against hostile armored forces. He thinks that this can be done with present means by adapting the immutable principles of security to new conditions of armament, and by the procedure suggested by good sense.

He outlines the characteristics of the armored menace, and then indicates the appropriate counter for each characteristic as follows:

To the armored and long-range engine it will be necessary to oppose a search for information at a distance from the troops protected proportional to the radius of action of the adverse threat and the time required for its intervention.

To the cross-country engine, vulnerable at the halt, will be opposed the obstacle, the natural fort.

To the armored engine, prepared to fire without delay, will be opposed the special penetrating arm emplaced under favorable conditions for fire and also protected; that is, in battery before the appearance of the adversary.

To the threat on the rear will be opposed all-around security.

To the deaf engine, visible, and which sees badly, will be opposed:

*[The division reconnaissance group (normal type), which is the one considered in this study, is composed of: 1 motorized squadron, 1 horse squadron, 1 group horse-drawn antitank guns, 1 squadron portee machine guns and antitank guns.—*Translator's note.*]

good eyes, trained and attentive, ears constantly on the alert, served by vigilant and prompt messengers;

objectives as small, flexible, and concealed as possible.

The author then proceeds with a detailed study of the subject, under the following headings:

I. — SECURITY IN MARCH

A. — THE RECONNAISSANCE ECHELON

Search for information. — Under this heading the author emphasizes that reconnaissance will always be incumbent upon aviation, but that terrestrial reconnaissance will be of capital importance.

Mechanism. — The author emphasizes that the mechanism of reconnaissance is not changed.

Establishing all-around security. — The author emphasizes the necessity for all-around security. He thinks that the division reconnaissance group may be able to provide the information toward the front, but that other elements should be charged with furnishing information to protect the flank and rear.

Distance and importance of reconnaissance elements. — The main force marches from obstacle to obstacle; it must have information of a hostile armored threat in time to gain the nearest shelter before coming under fire. Distance and importance of reconnaissance elements are affected by the quality of the communications net, security assured by neighboring elements, and information furnished by aviation.

B. — DISPOSITIONS OF THE COMBAT ECHELON

The reconnaissance echelon of the reconnaissance group finds security in its dispersion and its ability to utilize small folds in terrain. The combat echelon must find security by marching from obstacle to obstacle. An unarmored force not protected on all sides by an obstacle courts great risk of destruction. Bounds of the combat echelon depend upon location of these obstacles. Assuming that the combat echelon has two antitank guns, it displaces as follows: (1) the first antitank gun with its support marches rapidly to the next bound and takes position; (2) the main body of the combat echelon completes

the bound; (3) the second antitank gun, which has waited ready to fire, completes the bound.

If there are more than two antitank guns, more directions can be covered. The movement depends on training of leaders and troops, on vigilance of reconnaissance echelon, and on communications.

II. — STATIONARY SECURITY

Under this heading the author summarizes:

Conditions to fulfill in order to reduce the armored menace.

(1) Active aerial and terrestrial observation. Vigilant surveillance, permanent and certain. Close liaison, rapid communications.

(2) Selection, preparation and utilization of natural obstacles. Creation of complementary obstacles, mines, special dispositions. Canalization of enemy armored attacks.

(3) Subordination to these obstacles of the laying out of the position and of the line of resistance. Distribution and judicious choice of emplacements of antitank arms in canalized passages.

(4) Establishing all-around security on all avenues of approach, facing in all directions. Deep formations in quincunx.

(5) Camouflage and protection of the command posts and communication centers. Protection of the artillery assured by itself in all azimuths.

(6) In the division echelon, reserve of tanks destined for antitank counterattack.

III. — CONCLUSIONS

In his conclusions, the author states that the evolution and progress of armament will weigh so heavily on the form of future war that it is the imperious duty of all commanders to keep abreast of technical development. No new form of threat should catch them unawares. In the case of this study, he thinks that the following principles should be understood and inculcated in all grades:

Every unarmored force, halted or marching, surprised in the open by modern armored engines, is a force destroyed or disorganized.

The armored menace is always present and can come from all directions.

The only protection at the halt is the obstacle.

The engine can turn the obstacle; circular obstacles are therefore best.

The automatic arms placed behind a bush or behind stones or in a trench in open fields should be as absolutely condemned in training as they will be doomed to destruction in time of war.

In instruction, the signal pennant should be carried just like the musket, and utilized still more often.

For cavalymen, the led horses, for the motorcyclists, the motors, for the infantry, the teams or trucks, should be sheltered behind or in the center of an obstacle proportioned to the capabilities of the tank.

APPLICATION TO A CONCRETE CASE

Under this heading the author presents by an illustrative problem, an interesting detailed study of a bound in open terrain of a division reconnaissance group (normal type) in an advance under the threat of armored engines.

The problem, which is accompanied by a map, illustrates in detail a method of procedure for a division reconnaissance group covering the front of an interior division advancing to meet an enemy which is known to contain armored elements. It is an interesting outline of the technique that might be used by such a unit.

THE IMPERIAL CAVALRY CHARGE AND EMPLOYMENT OF FIRE

["La cavalerie impériale. Charge et emploi du feu." By Général Boucherie. *Revue de Cavalerie*, September-October 1937.]

Abstracted by Major L.K. Truscott, Jr., Cavalry

The superficial study of history, and the legends which form about the memory of glorious events, have given rise to the subject of the methods of combat of the imperial cavalry to an opinion different from that imposed by a thoughtful examination of facts.

It is legitimate, without doubt, to attribute to the intervention of the imperial cavalry on the field of battle an action often decisive, but it is inexact to pretend that this intervention was always characterized by the charge at the gallop of glittering squadrons assaulting enemy infantry with raised sabers.

This opinion would have had but limited consequences if it had not been the origin of a doctrine of employment which for many years made the cavalry forget the realities of war.

The French cavalry at the beginning of the Empire was still under the profound influence of the doctrines of Marshal Saxe, who recommended a cavalry "active and maneuverable, having little equipage, and of which the horses accustomed to hardships and fatigue lasted longer."

The Comte de Melfort, his pupil and aide de camp, published in 1748 a real code for "the maneuver of a regiment." This work doubtless neglected equitation, but it affirmed the necessity of instruction in firing and in the employment of arms mounted; it recommended a method for teaching horses to swim.

Choiseul, convinced of the value of the principles established by Melfort, which in addition resembled those that Seydlitz had applied in Prussia, imposed them in spite of resistance in the regulations of 1765-1768, the first regulations with which the French cavalry was endowed.

The regulations transformed the cavalry; in 1773, Guibert admired the deployment (in less than three minutes) of a column of 20 squadrons, and in 1784, the Prince of Prussia, assisting in the maneuvers of the gendarmes at Luneville, cried at the precision of the movements: "It is too much."

The regulations of 1788 and of the year XIII were but developments of the principles of the regulations of 1766.

Order and cohesion became the absolute rule; mounted pistol attacks were forbidden; the charge in close ranks, sabre pointed forward, was the mode of attack imposed.

Lack of quality in horses, and the equestrian tradition of the old royal cavalry, still limited the speed of gaits, which did not exceed 100 meters a minute at the walk, 200 for the trot, and 300 for the gallop. The charge began at the walk, "at the desired moment, the squadrons took the trot for 150 paces, then the gallop for 150 paces."

The cavalry galloped little; after the regulation of the year XIII, lessons in the gallop were given only to the noncommissioned officers and to cavalymen of the light cavalry. Regiments of heavy cavalry and dragoons did not practice at the gallop.

The division organization of the revolutionary army had caused the distribution of the cavalry regiments among the divisions of infantry. In 1800, Napoleon affirmed the necessity

of organizing a "mass of maneuver" which would permit him to intervene directly in the battle, and to this end he created Murat's cavalry corps.

He stated his opinion in a note in 1802: "The cavalry of the line, which can only be of great use by great masses and at the end of combat, and at the beginning or at the middle, following circumstances, should be separated from the other arms in order to be able to engage at the proper time and independent of them, always cooperating with them in the common end. It should, therefore, be assembled in army reserve."

From this time, he left to the army corps and sometimes to the divisions, only one or two regiments of light cavalry.

Thus the Emperor was trying in 1805 to exploit fully the maneuvering qualities of cavalry and the combat value of cavalrymen, by constituting powerful masses that he reserved for meeting the "decisive emergency."

Murat's corps consisted of two divisions of cuirassiers and carabineers, five divisions of dragoons, two brigades of light cavalry (28,000 men).

The intervention of this mass on the battlefield should, in the Emperor's opinion, be characterized by speed and violence, the charge in order, by successive echelons, constituted the normal mode of intervention. But this mass could be called to operate far from other arms; it was necessary, therefore, that it be sufficient unto itself.

Power, forever increased with firearms, could not escape the Emperor. It was necessary for the development of his strategical maneuvers, of which the characteristic was speed, that he might dispose of particularly mobile forces capable of capturing and holding an important position: "What one would be able to do with a great numerical superiority in cavalry, well-armed with dragoon muskets and with a light artillery numerous and well horsed, is incalculable," he wrote.

All the cavalry regiments were given a fire arm, the cuirassiers and dragoons were in principle given a battery of artillery of 6 pieces, the light brigades, a detachment of 2 or 3 guns, and in 1809, the Emperor decided even to assign to each cavalry regiment a half battery, a measure that could not be realized entirely on account of lack of matériel. He wrote in addition, "Artillery is even more necessary to cavalry than to the infantry, whether it attacks, remains in position, or rallies."

The imperial cavalry, very maneuverable, composed of cavalry equally habituated to using their sabres or their carbines, reinforced with artillery, was capable of being sufficient unto itself for fulfilling the missions that were confided to it; in combat, it combined nearly always fire action and mounted attack.

At Wertingen, Beaumont's dragoons attacked on foot, while Klein's squadrons overran the adversary by a rapid mounted movement.

At Amstettin, the advance of Russian infantry was checked by combined action of cavalry and its horse batteries.

The combined action of dismounted and mounted cavalrymen assured the glorious victory of Tudela.

The Emperor, in his will to preserve intact for the decisive action on the field of battle, a force at the same time powerful and rapid, prohibited all detachments from the regiments of cuirassiers that he reserved for this task. Beginning in 1811, a regiment of light lancers was assigned to each division of cuirassiers in order to relieve cuirassiers of all outside service, and in a letter to Clark, Napoleon stated: "When the cuirassiers charge infantry columns, the light horse should march on the rear and flanks in order to pass in the intervals between the regiments and fall upon the infantry when it is defeated."

Seeking a concentration of maximum means on the decisive point on the battlefield, which decided Napoleon to constitute an artillery reserve, as he had been led to constitute a cavalry reserve, entailed realizing the event by combined action of a concentration of fires of his mass of artillery, followed by the intervention of his mounted reserve.

At Eylau, at Moscow, Murat's charges were prepared by a violent artillery fire.

At Waterloo, Duchand's horse batteries marched forward so audaciously in order to support Kellerman's charges that the Emperor cried: "Duchand deserts."

Wellington characterized in these terms the methods employed by Napoleon. "He never made his cavalry charge alone in masses in the great battles. He used his cavalry by supporting it with great masses of artillery, in order to seize advance positions that he next occupied with his infantry or his artillery, striking the morale of the enemy by turning his flanks, or finally rapidly occupying a post in the center of his army."

The reality hardly resembles the brilliant charges at the gallop with raised sabers represented to us by the painters of history after a tradition more legendary than justified.

Search for success in rapid maneuver, the combined use of fire and shock, search for success in combat by maximum concentration of means of action on the adversary's sensitive point, such are the great principles which permitted the imperial cavalry to exert an influence, always useful and often decisive, on the field of battle.

These principles are still true. It seems at present when the cavalry is acquiring with the mechanical engine an increased mobility and new power, this return toward the glorious events of the past bears, to those who hesitate, a precious information; and to those who doubt, a pledge of confidence for the future.

THE PREAMBLES TO THE ATTACK ON VERDUN

["Les prodromes de l'attaque de Verdun." By General Rouquerol. *Revue Militaire Suisse*, September 1937.]

Abstracted by Major T.R. Phillips, Coast Artillery Corps

On 14 September 1914, General von Falkenhayn assumed supreme command of the German Armies. The fortress of Verdun, in his conception of the conduct of the war, was a decisive objective. The facts seem to show that he sought, after September 1914, to strike a mortal blow to the Allies in the region of the Meuse. The race to the sea and the French and British attacks did not permit him to follow up his first effort, but he returned to it as soon as circumstances permitted. The attack on Verdun, launched 21 February 1916, was the fruit of the meditations of General von Falkenhayn. Its failure brought about his dismissal as Chief of the General Staff.

It is important to recall that General von Falkenhayn was Minister of War at the commencement of hostilities, and that he retained these functions until his elevation to the supreme command. He had had to solve the problem of munitions supply, agonizing after the first week of the war; he was unable to forget the grave cares that the search for basic materials and organization of manufacture had given him. He saw advantages, at least for a time, in the combination of these functions, thanks to which he had avoided, he said, the clashes which were

produced in 1870 between the Minister of War and the General Staff.

These details explain the opinion of General von Falkenhayn of the importance of not prolonging the retreat of the German armies after the battle of the Marne. He considered that they should not abandon regions whose utilization was of the greatest importance to the German command.

This manifestly concerned the Briey basin, on the Western Front, and Upper Silesia on the Eastern Front. These two regions were equally necessary to the Central Powers for the supply of basic materials.

The ideas of General von Falkenhayn on the conduct of the war are given in a report submitted to the Emperor in December 1915. They appear to confirm and develop those applied in the operations at the end of 1914 and in 1915 in the Meuse region. The object of this study is to establish their continuity.

Here is an extract from this important document: "Within our reach behind the French sector of the Western Front there are objectives for the retention of which the French General Staff would be compelled to throw in every man they have. If they do so the forces of France will bleed to death — as there can be no question of a voluntary withdrawal — whether we reach our goal or not. If they do not do so, and we reach our objective, the moral effect on France will be enormous. For an operation limited to a narrow front, Germany will not be compelled to spend herself so completely that all other fronts are practically drained. She can face with confidence the relief attacks to be expected on these fronts, and indeed hope to have sufficient troops in hand to reply to them with counterattacks. For she is perfectly free to accelerate or draw out her offensive, to intensify it or break it off from time to time, as suits her purpose.

"The objectives of which I am speaking now are Belfort and Verdun.

"The considerations urged above apply to both, yet the preference must be given to Verdun. . . ."

According to General von Falkenhayn, this report was presented to the Emperor about Christmas, 1915. But it is quite probable that the dispositions preparatory for the attack against Verdun had been studied before this date, even though their execution had not been started.

Without insisting on the supposition which events have proved to be in error, we draw especially from this report the designation of Verdun as the most favorable objective for the German armies. A glance at the directions of the attacks executed against the two flanks of the fortress after the end of 1914 trace the same conception on the ground. These operations manifestly tended toward the encirclement of Verdun. They should have been crowned logically by the fall of the fortress and the capture of the French Third Army. It amounted to reediting the operations of Sedan and Metz of 1870 and placing them on the scale of modern size.

The two offensives which promised such great results had for theaters: one, the region between the Meuse and the Aisne, west of Verdun, directed toward the south; the other, the St. Mihiel sector, south of Verdun, directed to the west.

THE OFFENSIVE BETWEEN THE MEUSE AND THE AISNE

The orders given by the High Command for stabilization fixed the front of the German Fifth Army (Crown Prince) along the line: Vienne-le-Chateau, le Four-de-Paris, Varennes, Mont-faucon, etc. But the commander of the Fifth Army, the retreat of which after the Battle of the Marne seems to have been somewhat precipitous, estimated that the front was exposed dangerously to a flank attack by the mobile defense forces of Verdun. He had the retreat continued and fixed his defensive dispositions about 20 kilometers to the north of the points indicated by orders of his superiors. He even aggravated the general situation by establishing his troops entirely outside and to the east of the Argonne Forest, thus breaking connection with the German Fourth Army (Duke Albrecht of Wurtemberg), located west of the forest.

One of the first acts of authority of General von Falkenhayn had been to direct that the Fifth Army advance and occupy the ground which it should not have abandoned, and even to advance beyond this about 10 kilometers to the south of Vienne-le-Chateau.

In the execution of this order the Fifth Army was engaged in the battle of Varennes from 22 to 24 September 1914. To the east of the Argonne the German front had been carried to the line fixed by the High Command; Varennes had been occupied and passed through. But no appreciable advance had been realized in the Argonne. Le Four-de-Paris and Vienne-le-

Chateau remained in French hands. These two objectives were to occupy the activity of the German Fifth Army for long months. A primary result of the occupation of these objectives would have been the dissipation of the fears for the left flank of the German Fourth Army west of the Argonne.

For understanding the operations in this region, it is well to note the defensive character of the German front east of the Argonne while troops of the Fifth Army multiplied their attacks in the forest itself. We can conclude from this that the assailants judged it necessary to execute their movements sufficiently far from Verdun so as not to be hindered by its active forces.

The details of the operations pursued in the Argonne show the high value the German command attached to their success. After the battle of Varennes, the Chief of Staff of the Fifth Army, estimating that the troop commanders lacked the offensive spirit to continue the operations, himself wrote a plan of attack to be executed 28 September. Three days of murderous combat gave no useful results. Some days later the affair was again attempted under the command of the general commanding the army engineers with three divisions at his disposal. Again the direction of attack recommended by the corps commander, who knew the theater of operations, was thrown out. A new defeat opened the eyes of the general staff of the Fifth Army. The general of infantry, von Mudra, commander of the XVI Army Corps, whose clairvoyance had been proved by events, was given carte blanche for the continuance of the offensive and every possible satisfaction for his demands for supplementary means.

THE SAINT-MIHIEL OFFENSIVE

While these events were taking place in the Argonne, the Strantz group in the region of Metz and the Woivre, surprised the feeble defense of the heights of the Meuse with an attack energetically carried through. A detachment crossed the Meuse at St. Mihiel. They seized a position there on 24 September, the same day on which the battle of Varennes, east of the Argonne, ended.

The reflections that the simultaneousness of these two offensives suggest are obvious from a glance at the two maps in General von Falkenhayn's book on the supreme command of the German armies.

The continuation of the advances realized in the Argonne and at St. Mihiel would give the most brilliant results. The distance that separated them on 24 September was not more than 50 kilometers. The incontestable tactical successes soon obtained in the Argonne encouraged the execution of a vast turning movement against the west wing of the fortified camp of Verdun. The St. Mihiel offensive, after a promising start, was paralyzed by the menace it was unable to remove from its flanks. It burned itself out, reduced finally to the painful defense of its first gains of terrain.

The Argonne offensive could hardly have ended better from a strategic point of view; but it was not halted until after implacable attempts to advance resulted in insignificant success, too dearly paid for to be repeated.

The cause of these failures require some explanation.

General von Mudra commanded three excellent divisions in the Argonne, reinforced by troops of all arms detached from Metz. Because of the importance of his mission and thanks to his personal contacts, he disposed of abundant and high class matériel. A former engineer, he estimated carefully the employment and possibilities of his means. One should admit that he conducted the German operations in the Argonne with all the competence demanded by the difficulties of the terrain. In spite of the advantageous conditions of command and means, the progress of the offensive in the Argonne had been too slow to realize effective collaboration with the elements of the Strantz group occupying St. Mihiel.

After six months of almost uninterrupted combat, at the cost of very heavy losses, the German front in the Argonne had advanced from one to two kilometers. Le Four-de-Paris and Vienne-le-Chateau, objectives of the attacks of September 1914, would never be attained. The losses averaged 6,000 men a month.

At the moment when the menace of the French offensive in Champagne caused just apprehension to the Germans, the opportunity to continue a murderous offensive, with results more and more uncertain, became doubtful. General von Falkenhayn went to confer with General von Mudra. He decided that the operations in the Argonne should be stopped as soon as they reached a line which would be easily defended with reduced forces.

This front, according to an order of General von Mudra in October 1915, was nothing other "than an ordinary stabilized front."

We have seen that from the St. Mihiel side, the passage of the Meuse by a few units of the Strantz group, remained without results. It formed in the French front a pocket known to historians as the St. Mihiel hernia. The Germans had thrown five bridges or crossings over the bend in the river at St. Mihiel. These preparations were certain indications of intentions of an important offensive toward the west. The temerity of such an enterprise was emphasized by the difficulties of maintaining a small garrison in St. Mihiel. The flanking fire of the French artillery since November 1914, considerably hindered the communications between the two banks.

The five bridges or crossings were grouped in a sector of 500 meters entirely hidden from ground observation. But it was easy to direct the fire on the axis of the bend. The artillerymen of the French VIII Army Corps did not fail to do it.

Besides this, the activities of the French troops on the right bank of the Meuse were menacing the German communications toward St. Mihiel.

It is true that the St. Mihiel pocket remained until 1918, but it is equally true that the Germans drew no advantage from it. It seems they should have recognized the lack of utility in their conquest after January 1915. Up to this time tactical successes in the Argonne seemed to presage good fortune, and it was logical to continue the occupation of St. Mihiel, while conserving, in fault of better, an expectant attitude. One should also consider that even after renouncing the Argonne offensive, interest in the occupation of St. Mihiel remained in the double point of view of positive interception of the Meuse railway, and of the eventual role of St. Mihiel in a direct attack upon Verdun. This idea certainly existed in the mind of the Chief of the General Staff in the first months of 1915.

According to General von Falkenhayn, his choice of the region north of Verdun for the attack on the fortress had been determined by the possibility of clearly limiting the zone of action to the possibilities of his means. This condition will explain the abandonment of the Argonne and St. Mihiel offensives. It was, in effect, impossible to undertake them concurrently in connection with a direct attack on Verdun; to be properly conducted, they would have required an increase in

force which was not available at that time. Besides, the formidable artillery preparation planned for the attack on Verdun appeared to guarantee an impressive and decisive success.

The preparatory bombardment commenced 21 February at 4:00 AM. The assault was launched after twelve hours of fire. In four days the attack progressed largely and Fort Douaumont was occupied. This success seemed decisive.

However, seven months later the General Staff, forced to turn and face the French attack on the Somme, discussed the chances of continuing a costly battle which advanced no longer. On 2 September, the Supreme Command gave the order to halt it. A still graver measure was envisaged the following month. The Emperor came to study with the staff of the Fifth Army the possibility of withdrawing the front and replacing it along the positions of departure of 21 February. This measure was discarded for reasons of morale and politics, but the fact that it was discussed is confirmation of the renouncement by the German General Staff of all attempts to restart the attack against Verdun.

The replacement of General von Falkenhayn by Marshal von Hindenburg, 28 August 1916, does not appear to be without connection with the order to cease the offensive against Verdun on 2 September 1916.

This resume covers all the offensive activity of General von Falkenhayn on the Western Front during his command.

It seems that outside of the race to the sea his efforts to find a theater where the German army could obtain a decisive success always led him to Verdun. The battles of the close of 1914 and of 1915 in Flanders, Artois, Champagne and the eastern front had not modified the intentions contained in the orders given toward 20 September to the Fifth Army to move south to Vienne-le-Chateau and even ten kilometers farther, as well as the order given to the Strantz group to push to St. Mihiel.

We attribute the check of the double maneuver to two causes growing from a certain lack of knowledge of the practical conditions of execution.

In the Argonne, the difficulties of the exceedingly broken terrain, covered with impenetrable woods and few roads, should have prevented hope of a sufficiently rapid advance. At St. Mihiel, the solidly held French positions on the right bank of the Meuse did not permit the Germans to cross the river on a large enough front to continue an offensive on the left bank.

With the passage of time, we see thus a close connection between the offensive of the last half of September on the Meuse and the attack on Verdun in February 1916. After October 1914, the German front in the region of the Meuse did not change greatly until 1918, since the ground lost in the winter of 1916 was retaken by the end of the same year. The French front formed a pocket in the German front before Verdun analogous to the hernia of St. Mihiel. The strategists of the rear could not understand how the Germans were able to maintain themselves in St. Mihiel until almost the day of the final retreat. The French also maintained themselves in the pocket of Verdun. There is, however, no comparison between the enormous power the Germans employed against Verdun and the relatively feeble means in men and matériel at the disposal of the French to drive the Germans from St. Mihiel.

Having brought to light General von Falkenhayn's ideas on the decisive importance of the fortress of Verdun, one might ask if they were not exaggerated. Events did not prove him right. He had expected, in any case, that the French troops would be exhausted and the Paris government would sue for peace.

The French armies were certainly forced to severe trials in the uninterrupted combats; but they came out of them in condition to launch the battle of the Somme, which was to make their adversaries feel the first tremors of defeat and precipitate the end of the drama of Verdun.

CURVED TRAJECTORY FIRE IN THE INFANTRY

["Le tir courbe dans l'infanterie." By Colonel Schmitt. *Revue d'Infanterie*, September 1937.]

Abstracted by Major R.G. Tindall, Infantry

An important transformation in the tactics of small French units is foreseen by Colonel Schmitt of the French Colonial Infantry as the result of the recent increase in the infantry's curved trajectory weapons. The French rifle company has been given a 60-mm Brandt mortar, and platoon grenade throwers and an improved rifle grenade apparently are about to be introduced.

These new weapons and the new distribution of the 81-mm mortars prescribed in recent tables of organization give the infantry considerably increased offensive power, Colonel Schmitt believes. He insists that offensive fire is curved trajectory fire and points out that one or two mortars in the offensive are more valuable than large numbers of flat trajectory weapons such as machine guns.

The new instruction on the 60-mm mortar terms this weapon the principal offensive apparatus of the rifle company. Colonel Schmitt considers that the curved trajectory weapon is the true reserve of the leader in all infantry echelons with the added advantage that it is not expended when once engaged. He points out that it gives the leader a quick and effective way of intervening in the combat.

The eight 81-mm mortars of a French regiment are now divided as follows: two to each battalion and two under the regimental commander. This gives each French infantry commander his curved trajectory weapon. Moreover, the regulations on the 60-mm mortar specifically forbid the combining of these weapons into a groupment. Thus no higher commander is allowed to take away its mortar from a rifle company. Colonel Schmitt hails these provisions with warm approval.

He points out that the rapidity of infantry progression is the rapidity with which it can overcome isolated resistances. When it is held up by a hostile nest, what it needs is quick action rather than massive effect. The experience of the war shows that rapid action will never result if messages have to be written, asking someone else to act. This is particularly true if another arm is involved. Colonel Schmitt quotes the Instruction on artillery fire issued 7 May 1936, which states:

"Opening of fire upon the resistances which the infantry locates during its advance necessitates a rather long delay, incompatible with the desire to see the infantry progress rapidly."

Of course, if large resistances are encountered, intervention by masses of the division artillery will be necessary, but that means an entire reorganization of the attack. Colonel Schmitt believes that local resistances can be best handled by the infantry with its own new curved trajectory weapons, particularly the rifle company mortar. He admits that the tank is even better than the mortar for this purpose but remarks that there will not always be tanks everywhere and that furthermore, one

means does not exclude the other. Automatic arms will always reveal themselves after the passage of the tanks and the infantry will have to deal with them. Barring accidents, the 60-mm mortar's projectiles will not be dangerous for the tanks, whereas one will always hesitate to place artillery fire upon a resistance which reveals itself in the tanks' direction after the tanks have passed.

Colonel Schmitt expects the chenillette (miniature infantry supply tank) to solve the ammunition problem. However, the 60-mm mortar will not be allowed to take part in the preparation of an attack. It should not even be in battery at the start of the attack, but should be ready to advance. The mortar will advance *near the captain* between the leading and support platoons. The lightness of the matériel allows it to follow the riflemen at all speeds. Usually the mortar will be 150 to 200 meters behind the leading echelon. It has an effective range of 1,000 meters.

When the leading riflemen come under the fire of a hostile automatic weapon, all those who have not been hit will be pinned to the ground and will have little idea of the location of the hostile weapon. Those who have the best chance of spotting it are the captain's observers who are progressing near the captain, usually within sight and often within hearing of the latter. They are provided with field glasses, but above all they are not under fire of the automatic arm firing on the front line. They can lift their heads, observe and perhaps locate it.

The mortar is put in battery upon a signal from the captain and will be ready to open fire by the time the observers have finished pointing out the emplacement of the automatic weapon to the captain. Incidentally, the mortar crew may have spotted the target itself and opened fire on its own initiative.

Fire is adjusted by axial observation from near the mortar. Fire for effect is executed by bursts of four shells without any searching or traversing. The destruction of an automatic arm which is spotted should be obtained in five or six bursts. Colonel Schmitt estimates that this will take some fifteen minutes at the most after the mortar goes into position.

The first bursts, even if they do not destroy the hostile weapon will almost certainly neutralize it, and the riflemen must exploit this effect at once and gain ground so as to find an emplacement permitting the use of their rifle grenades against

the automatic arm in question or against any other resistance which is revealed.

The rifle platoons often will be able to advance without waiting for the mortar fire to cease. They can count on its ceasing in time because it will be observed at close distance and the observers are only a short distance from the mortar. Under such conditions audacity is justified and Colonel Schmitt predicts that it will be forthcoming under these conditions, whereas this will not be the case when other weapons are doing the firing.

Colonel Schmitt insists that the entire action of the rifle company in the offensive will depend upon the action of the 60-mm mortar and he sees no reason not to extend this principle to other infantry units. For once a change in armament is really beneficial to the offensive; he urges that a doctrine be established and that the French army draw the necessary conclusions. He foresees that the infantry, when provided with an entire series of curved fire trajectory weapons, will see its organization considerably changed. He insists that this be done without delay and says that there is no use clinging to the past, regretting that the rifle is no longer the principal weapon of the infantryman.

Maneuver of small units must be prepared quickly and executed without delay. This can only be done despite the hostile fire if neutralizing fire and movement are realized simultaneously. Within the infantry only curved fire trajectory weapons can make this possible. They partially restore the equilibrium between the exposed attacked and the sheltered defender.

Colonel Schmitt advocates a larger mortar for the regimental commander than the present 81-mm weapon. He wants a range of some 4,000 meters and considers mechanical traction essential for this weapon.

He believes that the provision of all infantry echelons with sufficient curved trajectory weapons will solve the difficult problem of infantry-artillery teamwork. The artillery will then only have to execute the prearranged fires or fires called for by its own observers. These, of course, would often coincide with the targets of the infantry weapons. Protective fires would grow in importance and direct support of the infantry by the artillery would diminish.

Under these conditions the infantry would be willing to accept the theory of a blocked off area, inside of which it would regulate all incidents with its own means.

STALIN'S PLAN FOR DEFEATING DENIKIN*

[From an article by V. Meliko, appearing in *Krasnaya Zvezda*, 14 November 1937.]

Abstracted by Lieutenant Colonel L.K. Underhill,
Judge Advocate General's Department

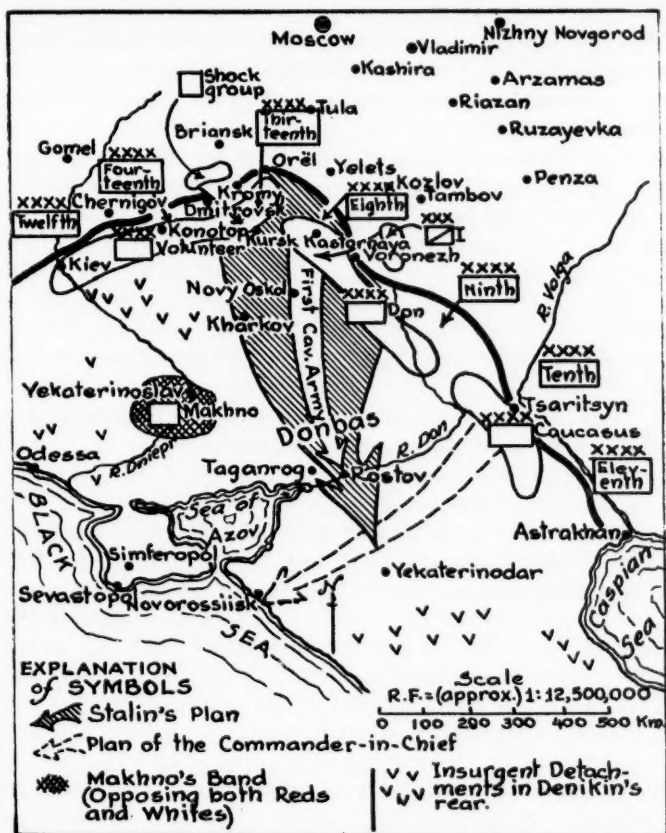
Strengthened by assistance from the Entente, in the summer of 1919, Denikin's forces advanced from the North Caucasus region and by 2 July reached the line: Yekaterinoslav — Tsaritsyn. However, the latter place had lost its strategic importance; as Frunze had already driven Kolchak behind the White River, a junction of Kolchak with Denikin was no longer possible.

Denikin's forces now held an immense territory: Crimea, North Caucasus, the Donbas, the Don territory, and the Ukraine.

On 2 July, Denikin and Vranghel arrived at Tsaritsyn. The latter proposed the following plan: to halt temporarily the attack of the Volunteer, Don, and Caucasus Armies, fortifying the relatively narrow front between the Don and Volga Rivers; to organize the service of the rear; and to form reserves; then to detach a portion of Vranghel's Caucasus Army to capture Astrakhan; the remainder of the Caucasus Army (3-4 cavalry corps) to concentrate at Kharkov and to move directly on Moscow, striking the Red Army in rear.

Denikin, however, saw in this proposal a plan on the part of his most dangerous rival to be the first to reach Moscow. On 3 July he issued a directive to his forces for the capture of Moscow: the Volunteer Army under Mai-Mayevsky to attack in the direction: Orël — Tula — Moscow; the Don Army under Sidorin to attack in the directions: Voronezh — Kozlov — Riazan and Novy Oskol — Yelets — Kashira; the Caucasus Army to advance by the longest route: Penza — Ruzayevka — Arza-

*Denikin at this time commanded the White Armies on the Southern Front. He had reorganized Kolchak (on the Eastern Front) as supreme commander. These armies, together with those of Yudenich in the west, and forces at Archangel, had practically encircled the Red forces and were endeavoring to overthrow the Bolshevik regime.



mas — Nizhny — Novgorod — Vladimir — Moscow. Denikin boasted that he would be in Moscow by Christmas of 1919.

The Entente furnished Denikin with tens of thousands of rifles, machine guns, and guns, millions of shells, and hundreds of millions of cartridges.

As the remnants of Kolchak's forces were continuing their retreat into Siberia, Denikin captured Kursk and marched on Orël, while Yudenich moved on Petrograd. At this time Lenin sent Stalin to the southern front, where the Red armies were in full retreat.

The Red plan elaborated by the commander in chief and approved by Trotsky was still in effect: to strike a main blow

with the Ninth and Tenth Armies in the direction of Tsaritsyn — Novorossiisk across the Don steppes. This region was absolutely roadless, impassible for infantry and artillery; and, besides, the attack would advance through the Cossack villages, thus solidifying the Cossacks behind Denikin.

Stalin therefore elaborated a new plan of counteroffensive as follows: to bring on a general engagement in the areas: Kromy — Orël and Voronezh — Kastornaya; to make the main blow through the regions of Kharkov, Donbas, and Rostov, whose laboring populations favored the Reds; thus to drive a wedge between the Volunteer and Don Armies. This would make it possible to beat the enemy in detail, and to capture the important Don railroad net, Denikin's principal line of communications (Voronezh — Rostov), and the coal mines of the Donbas. It would also tend to disaffect the Cossacks against Denikin, who would try to move the Cossack units to the west.

Lenin approved Stalin's plan, and removed Trotsky and a large number of his supporters from the southern front.

The autumn of 1919 was a very difficult time for the Reds. Denikin held the wheat regions of the Ukraine and Kursk. The White Poles held the regions of Minsk and Zhitomir. Mamontov's cavalry was plundering with impunity the villages in the Red rear at Tambov, Yelets, and Kozlov, removing cattle, textiles, food supplies and silverware. Under-cover subversive organizations were active in Orël, Moscow, Tula, Vologda and Petrograd. The crisis in provisions and fuel led to epidemics among the workers and among the troops at the front.

By the end of September the Whites held the line through Berdichev — Kiev — south of Orël — Voronezh — Tsaritsyn — Astrakhan. In their rear, however, there were continuous peasant uprisings against Denikin's policy of transforming the non-Russian inhabitants into slaves without rights. Denikin had to use his small reserves as gendarmerie to suppress these uprisings. Denikin's choice of the area: Donbas — Kharkov — Voronezh — Kursk for his main blow was unfortunate for him, as this region was hostile to him.

On 13 October the Whites took Orël and attempted the capture of Tula, where were located the munitions factories supplying the Red Army. A bloody battle took place on the 500-kilometer front: Konotop — Dmitrovsk — Kromy — Orël — Yelets — Usman — Bobrov. At this time the Whites had 120,000 bayonets and sabers, 600 guns, 2,400 machine guns; the

Reds (Twelfth, Fourteenth, Thirteenth, and Eighth Armies, and Budënný's cavalry corps) had 130,000 bayonets and sabers, 600 guns, 2,689 machine guns. Denikin ordered his forces to capture the line: Gomel — Briansk — Tula — Penza by 20 October. The Reds, under orders not to retreat another step, resisted the attack, and began massing for a counteroffensive on the flanks in the Kromy region, and at Voronezh (when Budënný's I Cavalry Corps would strike the two cavalry corps of Mamontov and Shurko), while fortifying the Orël region. A shock group was assembled near Kromy.

During the sixteen days' battle the Fourteenth and Thirteenth Armies crushed the left flank of Denikin's strategic front. The Whites at first held on stubbornly in the Kromy region; by skilful maneuvering they succeeded in defeating in detail the Red shock group regiments, which were dispersed on a 70-kilometer front. On the night 24-25 October, however, Stalin ordered Ordzhonikidze (member of the Revolutionary Military Council of the Fourteenth Army) to concentrate the shock group, to make a coordinated attack and to annihilate the enemy in his front, promising that other forces would encircle the enemy on the south. Accordingly, the Fourteenth Army captured Kromy and followed the retreating enemy, while the Thirteenth Army, which had recaptured Orël on the 20th, struck the enemy in the direction of Kursk. The whole left flank of Denikin's strategic flank was crushed, and the Whites began a rapid withdrawal toward Kharkov.

To the eastward, Budënný, outnumbered two to one by the cavalry on his front, massed his forces, and, after careful reconnaissance, sought to strike the enemy in flank. Shurko, however, launched an attack with the two cavalry corps against the Reds. His leading Kuban Division, losing direction and becoming confused, was surrounded and almost annihilated by Budënný's sabers. The latter, with the assistance of units of the Eighth Army, now attacked the Whites on three sides, and captured Voronezh.

Stalin now ordered Budënný to capture the important railroad center of Kastornaya. By 15 November the I Cavalry Corps had defeated Postavsky's group in the Kastornaya region, capturing 4 armored trains, 4 tanks, 4 armored cars, 22 guns, over 100 machine guns, tens of thousands of shells, 2 million cartridges, 5,000 rifles, over 1,000 horses, and 3,000 prisoners. After this decisive defeat Denikin ordered a general retreat.

The I Cavalry Corps was now formed into the First Cavalry Army under the command of Voroshilov and Budënný. Inserting itself as a wedge between the Volunteer and Don Armies, it drove the enemy southward to Rostov. The pursuit continued through November and December; Denikin's Army broke into two parts, one of which withdrew to the Crimea, the other to the North Caucasus.

The moral effect of Denikin's defeat contributed to the defeat of Yudenich before Petrograd.

In the southern campaign, the Red Army, by 10 January 1920, had captured over 40,000 prisoners, 750 guns, 1,130 machine guns, 23 armored trains, 11 tanks, 400 locomotives, 20,200 railroad cars, and an immense quantity of all sorts of munitions.

BOOK REVIEWS

GREAT CONTEMPORARIES

BY

WINSTON S. CHURCHILL

299 pages . . . G.P. Putnam's Sons, New York

Two prominent individuals survive the Asquith administration: Winston Spencer Churchill and David Lloyd George. Mr. Churchill has refused to recede into anything except his original Toryism. He is still somebody to be reckoned with, and those who altogether distrust his politics at least pay him the compliment of a persistent suspicion.

Mr. George is still faithful to Liberalism. Of the twenty-one "great contemporaries" with whom he deals, only four are still alive. With a political future still ahead of him, Mr. Churchill is no doubt anxious to avoid controversy; and so we get from this book a picture rather of a world that was than of a world that is, not a contemporary picture, but certainly a Conservative one. His portrait of Arthur James Balfour will illustrate what is meant by "Conservative." It is a subtle and affectionate appreciation of a highly subtle character, and contains one piece of historical information of the first importance to students of pre-war politics; and yet it excludes more than it includes. What it excludes is the ordinary world. Between personal friendship and lofty patriotism (these are the two points which Mr. Churchill stresses in all his political sketches) there exists a void. There are houses, encounters, witty gossip, little groups of well-informed friends; and there is England: but the people, the ordinary people, the English people, do not seem to exist at all. You are vaguely aware of them somewhere in the background, recording their votes and being governed; while above them a close circle of Mr. Churchill's friends serves, with a baffling mixture of adroitness and altruism, both its personal interests and an impersonal principle. Whether the "England" which figures so often in these pages is an ideal mistress or simply a means of keeping "dear George" or "dear Arthur" in office, remains always in doubt.

These sketches will be read for their personal material rather than their political implications, which are cloudy and cold: and much of the personal material is exceedingly well done. And there is always Mr. Churchill's vivid and impressionistic style, with its very English mastery of the suggestive and the vague; a style often hampered by the fact that he was writing with caution and possibly in a hurry; but still capable of much display. Mr. Churchill wears the purple, it is true; but he wears it with gusto, and nobody can deny that he wears it with a difference.

THE CAISSONS ROLL

BY

HANSON W. BALDWIN

323 pages . . . Alfred A. Knopf, New York

Perhaps the title to this valuable work might have been more in line with the contents. The book is a splendid military survey of Europe. In his capacity as Military and Naval Correspondent of the *New York Times*, Mr. Baldwin has had ample opportunity to gather correct data for his volume.

Europe is rearming on a scale never before equaled in peacetime. This race for armed power is evident on every hand, in every corner of Europe, and yet secrecy surrounds most of the details concerning these military establishments.

Mr. Baldwin here presents facts which, since war machines still dominate our civilization, should be known by everyone interested in contemporary history. For no other recent work sets down objectively, comprehensively, and yet in laymen's language, detailed statistics and the necessary background of the armies, navies, and air fleets of every country in the Old World, which are bound to play a tremendous part in the everyday affairs of all men for the next decade. Though not concerned primarily with prediction, Mr. Baldwin also shows the probable uses to be made strategically and tactically of these vast instruments of death when the time comes.

The great bulk of the information contained in the volume is based on personal observation during an extended trip through Europe and on interviews given the author by foreign-office officials, military and naval officers of both small and great

powers, American military and naval attachés, and diplomatic and consular officials.

ITALY AGAINST THE WORLD

BY

GEORGE MARTELLI

316 pages . . . Chatto & Windus, London

The first complete and impartial account of Italy's repudiation of the League and her conquest of Abyssinia by an Englishman writing with an intimate knowledge of the facts.

In reviewing the complete episode, from its beginnings in nineteenth-century Italian colonial aspirations to the triumphant entry into Addis Ababa and the terribly lame conclusion at Geneva, Mr. Martelli is able to make many things seem plainer than they did at the time. He recalls the report of the special British committee which found in early 1935 that "there are no vital British interests in Abyssinia or adjoining countries such as to necessitate British resistance to an Italian conquest." He puts together other evidence to show that initially Downing Street smiled hardly less cordially than the Quai d'Orsay on the contemplated imperialism, and then traces those intricate and somewhat contradictory currents of British opinion which, once Mussolini was committed, combined to force the British government into its sudden, and embarrassing, attitude of righteousness.

Mr. Martelli weaves an admirable summary account of the military operations into his narrative of the further diplomatic disintegration at Geneva. He dismisses the idea that in the Hoare-Laval scandal the British Foreign Secretary was taken in by the wiles of the Frenchman; the agreement was, rather, the obviously logical consequence of the dual policy to which the Baldwin government had disingenuously committed itself. The collapse of the agreement under the outraged moral sense of the British public only condemned Ethiopia to a destruction more certain than before; while in collapsing, the agreement still achieved its real purpose, which was to stave off the oil sanctions. Mr. Martelli's summary of the American attitude and policy is not, perhaps, quite accurate; but in his general analysis there is small support for the notion that the oil sanctions failed because of the United States. They failed because, under the

original postulates of British policy as well as of French policy, they had to fail.

It is the virtue of Mr. Martelli's study that it supplies a case-history of a complete international episode, thereby bringing out a living picture of that complex in action. Examining it, the reader can answer the question for himself; and at a moment when the United States is being summoned again to "collective action" by many voices, to examine the picture is well worth while.

THE FAR EAST COMES NEARER

BY

H. HESSELL TILTMAN

357 pages . . . J.B. Lippincott, Philadelphia

Outspoken, revealing, sensational — this book outlines for the first time the inside story of events in Eastern Asia which are of crucial importance to the whole world and to America in particular.

China, despite her obvious weakness and lack of preparation, has decided to resist. Her armies are on the march to try to stay the invaders. What the outcome will be, no one can foretell. But we know what the basic causes are. *The Far East Comes Nearer* states them clearly. It is required reading for all who take more than a passing interest in world affairs.

Mr. Tiltman's book was written during the calm before the storm. It is a quiet, detached account of those forces in both countries which have pushed their peoples into the present suicidal orgy of destruction.

It is easy for Americans to think that Japan's course has been dictated solely by a desire for glory and plunder. While this may be largely true, it is by no means the whole truth; for it leaves out of consideration the element of fear which is the greatest incentive to make men fight. The popular support which the Japanese leaders have had for their adventures on the mainland of Asia, despite the rising load of taxation, decreasing wages, and poverty of the farmers which they entailed, can be explained only by the fact that the people have felt themselves to be trapped. Put simply, they have seen but a single choice; either to fight for territory in which to expand, or to stay bottled up in their little islands and eventually to starve.

Mr. Tiltman begins his account with the seizure of Manchuria by Japan in 1931. He concerns himself primarily with events in the Far East since that date. A great deal has happened in that period — a great deal that will affect drastically the future course of history. So if the mass of detail with the necessary supporting dates, strange names, and confusing figures sometimes wearies the reader, he can take comfort in the fact that it is important to have the record set straight.

It is not easy for a foreigner to understand the point of view of an alien people. Mr. Tiltman has undertaken to do so in the case of the Japanese with considerable success. Particularly does he give one a feeling of the desperation which these people feel when they consider their rapidly mounting population (a million a year), their small area (Japan proper is about the size of Montana and 70,000,000 people now live there), and their meager resources (no cotton, very little coal and iron, practically no oil, insufficient food); and in stressing these facts he does a service to the western world. For whether or not we believe that Japan's fears are justified, we ought to know that they really exist; that they are not advanced simply as a neat excuse to cover acts of wanton aggression.

Mr. Tiltman gives a penetrating and balanced account of Japanese life. He says much good about Japan that needed to be said, he refutes many a canard and corrects many a biased fabrication circulated by interested parties in other countries to spread fear of Japan's aims and distrust of her methods. These are bad enough without being exaggerated. But he does not prove, nor seek to prove, that because the Japanese are in a dilemma they are justified in solving their problems by ravaging China.

AIR DEFENCE AND THE CIVIL POPULATION

BY

H. MONTGOMERY HYDE AND G.R. FALKINER NUTTALL

239 pages . . . The Cresset Press, London

Dr. Montgomery Hyde and Mr. Falkiner Nuttall are not alarmists. Their purpose in producing this book has not been to frighten the people with a highly-colored picture of the horrors of aerial warfare or with a reiteration of the awful menace to the civil population which is implicit in the recent and rapidly

increasing growth of the world's bombing fleets. They recognize the dreadful threat that modern bombing fleets represent to the ordinary citizen, but, having explained the full significance of that threat and warned the citizen of it, their main object is to consider the most effective methods of protecting him against it.

Their warning consists of a clear statement of the meaning and potentiality of air power; a sketch of the history and present organization and composition of the principal air forces of the world; an outline of the strategy of bombing; and a description of old and new weapons of aerial warfare and their effects. The potentiality of air power is well emphasized with quotations from opinions expressed by a number of persons who have spoken with acknowledged authority; and none can question the author's assumption that local defensive measures must play a part of the greatest importance in the general scheme of air defense.

Russia is credited with 5,000 first-line machines but, for lack of exact information, must continue to be an unknown quantity in the air. The authors credit Germany with 3,500 first-line aircraft, but General Weygand, who would not be inclined to under-estimate the forces beyond the Rhine, has just put Germany's first-line strength at 3,000 machines. The authors are careful to point out, however, that first-line comparisons are apt to be misleading. They lose much of their significance without reference to reserves and to training and manufacturing resources. . . . Furthermore, these figures are subject to alteration every month, as the rate of production increases and as old machines which have become obsolete according to new standards are excluded from the calculations.

In outlining the strategy of bombing, the authors emphasize the dangers which the civil population has to face from air attack by quoting some graphic and harrowing descriptions of the suffering caused by air raids during the War. They remind us that the total numbers of casualties from raids in England were 1,414 killed and 3,416 wounded, while the damage done to property cost nearly £3,000,000 — and they point out that today an attacking force could, within 24 hours, drop as many tons of bombs as fell in England throughout the whole four years of hostilities. They give an adequate summary of the technique of bombing; but present-day pilots will not agree with the statement that bombing from a diving aeroplane "cannot be deliberately planned and calculated as in high-altitude bombing. Great

accuracy of judgment is required to decide the correct moment to start a dive, for here the bomb must be regarded as being under limited control." They discuss the use and effects of the various types of bomb against which protection should be provided for the civil population, and, before going on to consider what form such protection should take, explain the mysteries of gas as a weapon of offense. Gas attacks on the civil population, the authors believe, can be rendered of comparatively little effect if the community be properly organized and equipped to meet them. Other factors such as the outbreak of panic and fire are, in their opinion, more to be feared than gas.

I KNEW HITLER

BY

KURT G.W. LUDECKE

Illustrated . . . 814 pages . . . Charles Scribner's Sons, New York

A Nazi unburdens himself in this work. He boasts that he can talk back to Hitler, but we, of course, cannot believe him. His writing is spontaneous enthusiasm.

Here frankly, proudly, are antisemitism, advocacy of violence, calumny of such men as Bruening and Stresemann, and adulation of such men as Rosenberg. Here is worship of the Fuehrer, though combined with a certain amount of disillusionment. Here, in short, is a revelation of how the Nazi mind works; and it is a most depressing picture.

Even though the author was Hitler's prisoner, even though he had to flee from his Nazis, even though he lives in exile, he has acquired no reasonableness, no perspective, no sense. Like the lawyer to whom the defense was entrusted, he goes bellowing on to the last.

What will perhaps interest American readers is not the fury, but the episodes involving Henry Ford and the Sunday Evening Hour prophet, W. J. Cameron. In 1924 these men were, according to Herr Ludecke, greatly interested in Hitler. Cameron was, he hints, interested enough to think well of spending some of Ford's money; but Ford was too smart. He listened, but he did not contribute.

It is pleasing to read that the German-American societies, before whom Ludecke appeared to praise Hitler, gave him a very cold reception.

This book is more than fifty per cent too long. Yet for any one who wants to know something about how Nazis operate in this country — and to laugh at their breath-taking ineptitude — and for any one who wants to look into a Nazi's mind, this piece of exhibitionism will be valuable. Herr Ludecke conceals nothing; and therefore his last-page wishful-thinking that Hitler may perhaps yet lead the world to salvation, makes the Scriptural dog seem a creature of elegant and fastidious taste.

BACKGROUND OF WAR

BY

THE EDITORS OF FORTUNE MAGAZINE

Illustrated . . . 296 pages . . . Alfred A. Knopf, New York

Those who aspire to some understanding of contemporary foreign events would do well to read this collection of articles from *Fortune*. Here are passed in review the timidity and vacillation of British foreign policy, the tragedy of Spain, the paradoxes of the Third Reich, the rise and accomplishments of the French Popular Front, the business of modern warfare, and the contradictions of the Soviet Union. All the chapters are well written, and the subject matter is often illuminated with considerable penetration.

Probably the best part of the book is the opening chapter, which draws up a damning indictment of the recent foreign policy of Great Britain. The background of the Spanish civil war is also admirably sketched. Equally commendable is the section on the Soviet Union, which rightly rejects the facile conclusion that in the light of recent events the Soviets must now be regarded as a negligible military quantity. The same interpretation characterizes the chapter on modern warfare.

The article on the Third Reich casts a revealing light on German psychology and avoids the usual mistake of regarding the Nazi state as a capitalist paradise. The economic picture is painted a little too dark, and the reasons for Germany's economic dilemma are nowhere adequately explained. As for the chapter on France, it overemphasizes the influence of the "eco-

monic and financial oligarchy" on French politics. At the same time it is too uncritical of the Popular Front government, whose financial ineptitude it largely overlooks.

GENERAL CHIANG KAI-SHEK

BY

GENERAL AND MADAME CHIANG KAI-SHEK

Illustrated . . . 187 pages . . . Doubleday, Doran & Co., New York

This book is made up of three documents. The first, written by Mayling Soong Chiang, the generalissimo's wife, offers an apology and an explanation for the slow development of a modern, united Chinese nation. The others are accounts of the abduction of General Chiang at Sian, in December, 1936, and his subsequent release. The generalissimo's own story, consisting of extracts from his diary, is supplemented by the text of his final admonition to his captors.

Madame Chiang's writing is simple yet colorful and dignified. She pleads for sympathetic understanding of China's difficulties, springing as they do from the introduction of a new civilization into a vast, undeveloped country impregnated with a tradition and an ignorance which must be painfully destroyed.

Chiang, his wife maintains, had national unity almost within his grasp when the Sian episode took place. As it is described here, that incident makes an absorbing story in human terms, but one which taxes the credulity of the Western mind. The rebels appear in the role of rash but naive militarists who, distrusting Chiang's sincerity, seized the generalissimo in order to impress upon him the necessity for speeding up the democratization of China. They held him for a fortnight while arranging for their own security after his release. For his part Chiang is shown as the pious patriot, refusing to sully his own or his country's honor by treating with rebels and military subordinates, and cowing the mutinous war lords by sheer force of character.

The external evidence goes far to disprove the picture here presented. Chiang Kai-Shek's past brands him as an exceedingly astute politician rather than a simple, high-minded national hero. We know that the Sian rebels were strongly influenced by the Chinese communists; that their uprising was symptomatic

of a militant, nation-wide demand for strong and immediate resistance to Japan, which had been sharply repressed by the Nanking government; and that the Sian coup paved the way for a stronger anti-Japanese policy involving an alliance with Chiang's erstwhile communist enemies.

In the survey of China's problems, Madame Chiang's anti-communist strictures, her condemnation of all Chinese to the Left of her husband's government, read more like Nanking propaganda than a truthful description of the facts. Chinese communism, with its progressive agrarian program, is after all an outgrowth of the Kuomintang's failure to assist the peasantry — a failure hardly mentioned by the generalissimo's wife.

POPULATION PRESSURE AND ECONOMIC LIFE IN JAPAN

BY

RYOICHI ISHII

259 pages . . . P.S. King & Son, London

This book presents a comprehensive as well as a critical view of the origin and present status of Japan's population problem. The author has traced the historical and sociological traits underlying the development of Japanese population and has analysed in detail the present demographic factors, using the latest scientific technique. The results of these surveys he has related to the nation's economic and political condition, which has received an exhaustive scrutiny. This is the first work of its kind, written by a population and economic expert, who, unlike most Western writers, has had free access to Japanese source materials unavailable in European languages.

Population pressure or "Standing Room" as it is often called, is the most vital problem of three world powers today. It behooves every officer to understand something of its importance.

ONE HUNDRED AND SEVENTY-FIVE BATTLES BY LAND, SEA AND AIR

BY

ROGER SHAW

(Edited by Colonel S.C. Vestal, U.S.A., Retired)

258 pages . . . Military Service Publishing Co., Harrisburg, Pa.

This book marks an unique departure in military history, strategy and tactics. For the first time there is presented to-

gether, for comparison, the campaigns and battles of all the great and near great Commanders, of all Countries and all times, beginning with the earliest reliable records and continuing down to the actual present.

The accounts are necessarily and happily brief, but the outstanding features of every engagement that has shaped the course of history and determined the destinies of mankind, are set forth. Here is a vivid and fast-moving panorama of the armed strife of the ages. All of the conquerors, the despots, the great captains, the national heroes, of all times, pass in review before your eyes, exposed in their true stature and character to the floodlight of history: Alexander, Hannibal, Scipio, Caesar, Gustavus, Marlborough, Frederick, Turenne, Napoleon, Wellington, Moltke, Oyama, Hindenburg, Pershing — these are but a few of them.

History presents many facets; ethnological, political, social, religious, commercial, industrial. All of these are intensely interesting and illuminating. But above all other of man's multifarious activities his armed conflicts command attention and interest. More truly than any other record the annals of war are the annals of the lives of nations. Most of them had their birth in strife, and they had been raised to the pinnacles of power and glory, and pitched into the depths of oblivion, by the final arbitrament of the God of War.

The battles are arranged in chronological order, with an alphabetical index. The general course of each battle and the reasons for victory or defeat are the clearer because the accounts are brief.

The author has no theory of war to demonstrate or urge upon the reader. He suggests no panacea for war. He leaves untouched the interesting theory that by a super-neutrality we can remain immune to war; but he describes the lot of Prussia when she attempted to follow such a policy. He urges no "swollen armaments," but he depicts the fate of nations who have neglected their defenses and become steeped in "pacifism."

This work consists of brief accounts and keen comments on one hundred and seventy-five of the world's campaigns and battles. The list, beginning with Marathon, and ending with the Spanish Civil War, even now in progress, is most impressive.

THE NEXT WAR

BY

AIR COMMODORE L.E.O. CHARLTON

82 pages . . . Longmans, Green & Co., New York

Europe becomes ensnarled in another diplomatic crisis, German bombers massacre the upper classes at the Hendon air races and the lower classes in the London tubes. The bombing squadrons return to demolish the shipping areas and water supplies of Britain. A final smashing raid on London compels unconditional surrender. In the meantime, half the British fleet is devastated by Italian attacks on Alexandria, and the French Government capitulates after a similar series of carefully planned air invasions. Thus the next war begins and ends. With staccato sentences and repeated understatement, Commodore Charlton has produced a version of every Briton's nightmare.

Lord Davies contributes a foreword which prescribes the New Commonwealth program, with its omnipotent international police force, as the remedy. The author would seem to favor, by implication at least, expansion of the British air forces and scientific investigation as to the proper methods for turning the aeronautical tables on Berlin. He indicates that anti-aircraft guns and gas masks are inadequate against an aerial attack which combines destruction and terrorism. For the American reader there is perhaps one consolation: this next world war is so brief that there is no time for either neutrality or war debts.

THE WAR IN ABYSSINIA

BY

MARSHAL PIETRO BADOGLIO

Illustrated . . . 208 pages . . . G.P. Putnam's Sons, New York

Marshal Badoglio's contribution to the history of the war in Ethiopia waged by the Fascist government of Italy is a plain soldier's book. One can imagine the Duce saying to his ablest general, really one of the great soldiers of the world: "To impress our enemies, you must, in the cause of fascism, make as fine a job of your narrative as was your quick and decisive campaign

against a savage people in a hostile country of almost impassable mountains."

In a foreword to his commander's book the Duce says that the coming war in Ethiopia had to be won "quickly," because the League of Nations had imposed sanctions upon Italy. He speaks of "an enemy trained by European instructors and armed with modern weapons." Mussolini concludes: "On May 5 the tricolor of Italy was hoisted over the ghebi of the Lion of Judah. Four days later began the new epoch of the Empire of Rome." Badoglio, the professional soldier, did not consider the Ethiopians a formidable foe, and he was under no illusion about their training and equipment. Bluntly, he says: "The war was won quickly, by reason of our immense moral, spiritual and cultural superiority, and of our crushing superiority in armaments and resources of every kind."

Let no one make light of the achievement of the Italians. The engineering, transportation, commissariat, and medical problems which the Italians had to solve were tremendously difficult, formidable enough to daunt the scientists and soldiers of any nation. De Bono, Badoglio and their lieutenants might well challenge the armed forces of any other nation to better their performance. "Antres vast and deserts idle, rough quarries, rocks and hills whose heads touch heaven" were multiplied past the counting in the wildernesses where the Italian legions campaigned. The camera has produced them realistically. Examine "the rugged Tembien region," the "site of the battle of Enderta," and Tzellemti, over whose crags the Italians climbed to occupy Debarech, and wonder how motor cars, tanks, ambulances and airplanes could be operated in such a dreadful land. Look at the stripped-to-the-buff spade-wielders building roads in a temperature of 130 degrees and more, and say whether that was not tough campaigning.

MILITARY HISTORY OF THE WORLD WAR

BY

COLONEL GIRARD LINDSLEY MCENTEE, U.S.A., Retired

Maps and Diagrams . . . 583 pages . . . Charles Scribner's Sons, New York

There is no one better qualified to write this history than Colonel McEntee. He has a background of overseas service

during the war as a staff officer of the 7th Division; his service from the close of the war until his retirement in 1933 comprised attendance at the Leavenworth schools and the Army War College, and included duty on the Army General Staff. During all his post-war service he has devoted his attention to a meticulous study of all the operations of the World War and has presented the results of his studies in numerous lectures. Now he offers them as a whole.

The book is not written to defend or attack any preconceived strategical theories. It is an honest description of the actual operations of the World War on every front and gives the strategical and tactical moves actually made in every battle, whether these moves were based upon sound considerations or not.

It is a military history and will be of interest to military men. By reading in simple and easily understandable language the story of how the principles of war actually applied, one can acquire an understanding of how war is waged which will give a much better appreciation of the factors influencing it. The book is a splendid addition to the library of either soldier or civilian.

THE KAISER ON TRIAL

BY

GEORGE SYLVESTER VIERECK

Illustrated . . . 514 pages . . . The Greystone Press, New York

Ex-Emperor William II of Germany is tried before an international court of justice, composed of an American, an Englishman, a German, a Frenchman, and presided over by a Hollander. The jury is a body of men representing eleven nations, and a masked twelfth member — the reader. This is the setting of George Sylvester Viereck's new book.

The former Kaiser is tried on three counts. Was he an incompetent monarch? Did he not keep faith with himself and his people? Did he, alone or with others, deliberately plan and provoke the World War? "The Allied and Associated Powers," says Article 227 of the Treaty of Versailles, "publicly arraign William II of Hohenzollern, formerly German Emperor, for a supreme offense against international morality and the sanctity of treaties."

The living and the dead are called upon to testify, including the Americans William Jennings Bryan, Robert Lansing and Colonel E.M. House. The statements of the prosecution are borrowed, sometimes literally, from state documents and the writings of hostile historians, Mr. Viereck tells us, while the defense arguments are drawn from the literature presenting the German case.

The trial is not confined to the determination of William's guilt as a monarch. The ex-Emperor's past is on trial. We hear the testimony of character witnesses about his emotions and religious views. The author also appraises some of pre-war Germany's leading statesmen.

PLOT AND COUNTER-PLOT IN CENTRAL EUROPE

BY

M.W. FODOR

317 pages . . . Houghton Mifflin Company, New York

The aggregation of small nationalities commonly known as the Balkan States has long been recognized as the nest in which are hatched most of Europe's most serious problems. Their local friendships and jealousies and their dangerous proximity to some of the greater powers whose land hunger constantly urges them to seize the estates of their less powerful neighbors keep Europe in a constant turmoil of intrigues, and may again, as in the World War, make them the source of the fire which starts a general European conflagration. Everybody knows that, and yet few people know much of what is going on in these intensely important little nations. That deficiency is well supplied by this book.

For a book to have any real value its author must know intimately the subject of which he treats. That knowledge is an outstanding characteristic of Marcel Fodor. He was born in Hungary and has lived in England, Italy and Austria. For many years he was the Central European correspondent of the *Manchester Guardian* and the *New York Evening Post*. His knowledge of Central Europe is thoroughly comprehensive and his presentation of that knowledge in this book is not only authoritative but most charmingly readable. The book is a survey and exposition of the complicated and devious political

and diplomatic problems of Central Europe, but, in spite of the formidable subject, is as interesting throughout as a popular work of fiction. Only Mr. Fodor could have written a book which is at the same time so authoritative and so entertaining.

RED STAR OVER CHINA

BY

EDGAR SNOW

Illustrated . . . 464 pages . . . Random House, New York

For nearly a decade prior to the present Japanese invasion of China the latter country was torn by civil war, partly precipitated by the rivalries of provincial war lords, partly, and more significantly, by Chiang Kai-shek's attempts to exterminate the Communists, with whom he had broken in 1927. The Communist movement was gravy for the Japanese, since it not only helped keep Chiang Kai-shek occupied, and so facilitated their movement from Manchuria southward, but also added to that movement a needed flavor of morality. But while communism was thus serviceable in its earlier stages it contained the elements of serious danger to Japan, since it was both nationalistic and anti-Japanese. The Chinese Soviets, in fact, have been nominally at war with Japan since 1932. The moment an understanding was reached between the Soviets and the Nanking Government, which happened following the famous kidnapping of Chiang Kai-shek more than a year ago, there was bound to be a crisis in Sino-Japanese relations.

It seems certain that what Mr. Snow is describing is one of the major facts of modern history, as well as one of the most dramatic. If the book has been correctly interpreted the significance of Red China is not that it is red but that it is Chinese and that it may portend the long-predicted "awakening" of the Chinese people and the ultimate frustration of Japanese imperialism. The current victories of the Japanese may be an entirely logical early stage in this process, for they may bring about the passing of Chinese nationalistic leadership into new and more capable hands.

With admirable thoroughness Mr. Snow deals with Red China from almost every possible angle: its history, including its origins, its development in Kiangsi, the fabulous "Long

March," the re-orientation in Shensi, and the amazing series of episodes, culminating in the seizure of Chiang Kai-shek by Chang Hsueh-liang which created the semblance of a "United Front" in China; the biographies of some of its leaders — dramatic beyond belief in cases; its economic and financial set-up — the Commissioner of Finance at last reports received a salary of \$5 a month; its relations with the peasants; its agencies of propaganda, including the Anti-Japanese Theatre; its educational methods; its soldiers and their methods of fighting; its philosophy and its relations with Russia. The last, according to Mr. Snow, are mainly intangible. From first to last the Chinese Communists have taken advice from the Comintern, but they have had precious little aid of any other sort, and the advice was sometimes disastrous in its effects.

GERMANY: THE LAST FOUR YEARS

BY

"GERMANICUS"

116 pages . . . Houghton Mifflin Co., New York

One of the better-known proverbial sayings in German is: *Der Krug geht so lange zum Brunnen bis er bricht!* which may be translated to mean: There is a limit to everything! We wonder if Hitler, Goering and Schacht themselves actually believe in their stuffed statistics which offer such a glowing picture of the new paradise beyond the Rhine. No unemployment, higher prices and lower wages, abundance of everything, may it only be a synthetic *Ersatz!* Let us accept this book as the authoritative analysis which it claims to be — not because, however, as stated, "this is the first book to use the German official figures," but because we ourselves could compile events and decrees and financial jugglings of the Third Reich's existence and arrive at closely similar conclusions. And as such an authority, it paints a quite different picture of a quite different Germany, based on facts which are undisputable and their consequences which seem as inevitable.

Perhaps the most striking feature of the book is the constant comparison of the much-advertised economic resurrection and State help by the Nazis to the same tasks carried on at less expense with often far greater results during the days of the

republic. How many or how few Germans may know these facts and figures? (See Chapter X: The Cost of a Totalitarian State.)

Just how is Hitler financing his gigantic rearmament program, what methods of economic control does he employ, how are banking and Stock Exchange operations carried on, how is foreign trade manipulated, what is the position of agriculture and to what purpose, what really are Germany's preparations in terms of economics for war — these are but few of the fascinating and grim problems taken apart and put together again for every one to see and — note.

Hitler borrows: On August 25, a third public loan this year was floated (\$281,610,000), the total of such loans alone since '35 amounting now to 5,600,000,000 marks. And as for Germany's apparently ever-increasing foreign trade and self-sufficiency, simply use the figures released by the Reich, "figures which are freely accessible," and we find that Germany exports mediocre-quality finished goods at uneconomical prices leaving her home-market demands unsatisfied, in order to obtain foreign exchange with which to buy abroad such materials without which she cannot exist.

"Germany's Economic War Preparations" gives an excellent background and analysis of the new *Wehrwirtschaft*, which is the science of the Nazi economics of directing all economic life in peace-time along totalitarian war lines. Whatever the "potential" of the next war — and according to the Nazis, this war is inevitable — let the entire life of the nation be prepared for it.

AMERICA AND THE WORLD WAR

BY

SAMUEL TAYLOR MOORE

309 pages . . . Greenburg, New York

Mr. Moore begins by emphasizing the extreme slowness with which Americans waked up to the importance of the war and a realization of what it was about. Even as late as the spring of 1917, he points out, "the war across the sea continued to be regarded as a thing unreal, a distant nightmarish drama, incomprehensible to lay America generally in its cause and in its progressive manifestations of horror and futility." The suc-

cession of dramatic incidents was slow in stirring patriotic emotion, and while neutrality was accepted as a patriotic duty, there was nothing about neutrality that conduced to enthusiasm of understanding. Not until the sinking of the *Lusitania* was mass antipathy to Germany aroused, and popular interest was more concerned with the Mexican imbroglio than with most of what was happening in Europe.

Naturally, having been slow in waking up, the country was slow in making ready, and "the stark and sickening record of the complete inadequacy of our military preparedness" is vividly set out. The selective draft went off well, liberty loans were abundantly subscribed with what at first seemed like spontaneity, and the Navy was alert, but the military situation was lamentable. Only because American factories were making rifles for the Allies was the need for rifles eventually met, uniforms and shoes were months late, there was not a military gas mask in the country, hand grenades were not being produced for American use, and no American soldier knew how to use them, the few hundred machine guns were of various types, and French sources supplied most of the ammunition for American artillery. "Never were American-made cars and trucks to relieve our dependence on French and British camions and lorries." For all the material that the Allies furnished, Mr. Moore of course reminds us, America paid and paid well, but the fact "does not mitigate the scandalous truth that we fought and won the World War with Allied weapons." If the need of national preparedness in the face of a foreign war requires any lessons from the past to enforce it, Mr. Moore's pages can provide them in abundant measure.

It is more heartening to go on through the chapters in which Mr. Moore recounts America's participation in the war in Europe. The special characteristic of this part of his book is his insistence upon the importance of the American military contribution. Allied control of the news, supplemented by the American military censorship, magnified British and French successes and minimized or obscured American accomplishments, but in the end the "decisive push," Mr. Moore contends, was given by the American Army. With hardly an exception, Mr. Moore warmly supports General Pershing in his stand against British and French interference, and for the conduct of American troops in action he has high praise.

AT THE PARIS PEACE CONFERENCE

BY

JAMES T. SHOTWELL

444 pages . . . The Macmillan Company, New York

Dr. Shotwell's book is not a vindication of the work done at Paris. Looking back, he sees clearly the defects of the settlement which, to some extent, he helped shape. He asks only that the conference be judged in terms of the conditions of 1919, not in terms of what came afterwards. To facilitate the task of understanding, he offers his diary and letters. Through his eyes the reader may relive events and form more just conclusions.

The book, and the record is printed as written, with only some changes in arrangement and the omissions inevitable if boredom or libel suits are to be avoided. Those who have patience and real interest in the problem of understanding what happened at Paris will learn more from Dr. Shotwell's sober pages.

They will see how war passion warped the judgment of men who wished to make a just peace: when George Louis Beer tried to make conversation with a former subject of Austria easier by using a few German words, "we called him off for fear someone would draw a wrong conclusion." The importance of national prejudices will be realized after observing Samuel Gompers's suspicion of European labor leaders, both because these leaders were tainted with socialism and because they were willing to use capitalist governments as a medium for securing gains for labor. Trifling episodes show something of the weakness of the American delegation: Robert Lansing's surprise that a British statesman should think it worth while to discuss a problem with a technical expert, and an American expert at that. Casual remarks show almost shocking innocence: "I had a good time talking to Sir Eyre Crowe of the Foreign Office but failed to convince him of the need of opening the British archives." At the end, a conviction arises which few felt at the time: a workable peace settlement was impossible because the Allies had little in common.

WEST POINT TODAY

BY

KENDALL BANNING

312 pages . . . Funk & Wagnalls Company, New York

Mr. Banning has written a volume to place on your bookshelf, beside the classic *Cadet Days*, written so many years ago

by Captain Charles King. *West Point Today* takes you into the Academy and gives you the feel of the institution. You are enlightened on the traditions of this great school which those fortunate persons who have attended were forced to learn by experience.

The spirit of sportsmanship is well illustrated in the description of the hockey matches between the Canadian Academy and West Point. Canada has won every single one of these matches; however, that school has never taken the trophy which is annually fought for. The "cup" is left in the care of the Cadets in Gray.

The book is a complete and accurate exposition of the routine, life, instruction, training, athletic and physical progress, tradition and management of this academy.

Old graduates will find in the book much to compare with the West Point they knew and loved. Recent graduates will like this work to keep fresh their own cadet days. Young men aspiring to fight their way into and through the Academy will profit by actually studying this book. West Point preparatory schools would do well to present this work to their candidates at the beginning of the course.

Every West Pointer will join in giving Mr. Banning a salute and a Long Corps Yell for his splendid contribution.



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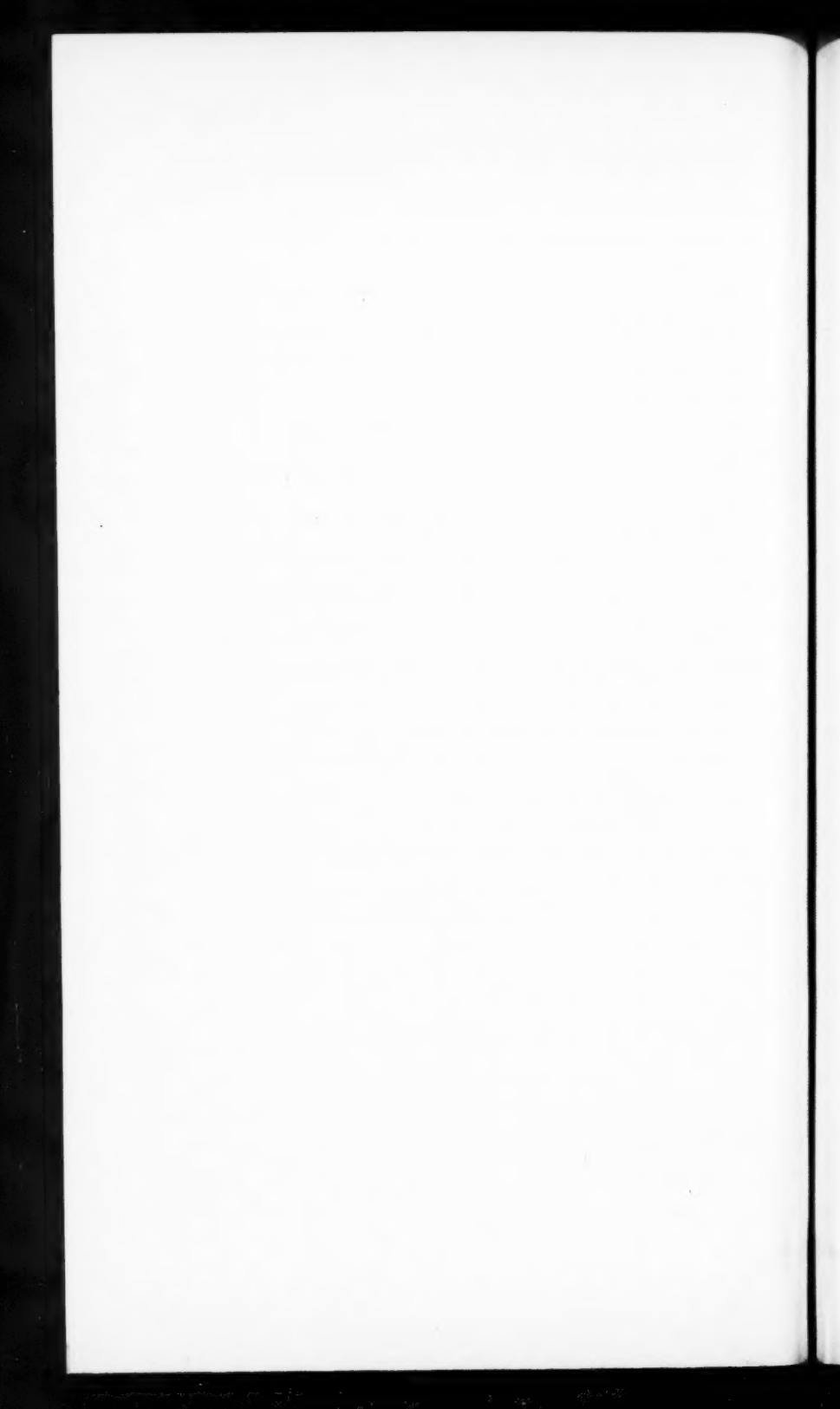
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Academic Notes

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DEVELOPMENT FOR COMBAT UNDER COVER OF DARKNESS

Lecture to The Regular Class (1937-1938)
The Command and General Staff School

BY

MAJOR F.M. BRENNAN, Infantry

Night operations are as old as war itself and the principles governing them have changed less through the centuries than probably any other form of military operation. In studying the history of recent (World War) night operations, one is amazed to find how frequently the well-known principles were ignored or neglected, especially those applying to night attacks. The capture of Stony Point during the American Revolution furnished an example of the correct application of the principles of night operations. Had this and many similar examples been followed during the World War many bloody disasters and failures might have been averted. It is interesting to note that the subject of night operations is being given more consideration by military writers. Training in night operations is receiving much more attention than formerly in most foreign armies.

Improvements in arms and modern means of gathering information and the increasing use of mechanized combat vehicles all tend to increase the importance of and the necessity for night operations. It is generally conceded that tactical success depends to an extraordinary degree upon surprise. One of the usual means of securing tactical surprise is by making our final dispositions or movements to attack positions under cover of darkness. While darkness decreases the efficiency of the hostile information-gathering services it also decreases our own efficiency in movement, troop leading, maintenance of direction, control, liaison, cohesion and communication. Therefore in planning for night operations we must foresee these difficulties and take all possible precautions to reduce their effect.

Many of the details which will be discussed would not appear in orders and may not be mentioned either in messages or conferences in a well-trained organization. It should be borne in mind that it is dangerous to undertake any but the simplest kind of night operations unless the troops are well-trained.

Even well-trained troops may easily lose direction and control when moving even along roads at night. The story is related that a well-trained organization some years ago went out one night for training in night marches. After a time the commander at the head of his column became aware of troops on the road ahead of him. He went forward to investigate and found that these troops were the tail of his own column. The commander had a reputation for efficiency, the terrain was known, the troops were well-trained. This emphasizes the difficulties of night movement. Any officer who has engaged in night operations to any extent is well aware of this difficulty.

Many night operations have failed because of lack of control. It is hard to distinguish individuals at night and therefore the transmission of orders becomes slow, uncertain and difficult. This unfavorable characteristic can be modified by requiring subordinate leaders to march at designated places in the column and to wear a distinctive mark. Silence should be imposed upon all personnel not only to prevent the enemy from hearing, but also to instill calmness and facilitate the transmission of orders. In situations where a near approach to the hostile lines is made, all noisy equipment must be eliminated or silenced.

Troops engaged in night operations are highly sensitive and are more subject to panic than during daylight. This difficulty can be lessened by prior special training at night, rest, food and the strictest march discipline. Special precautions must be taken to prevent straggling.

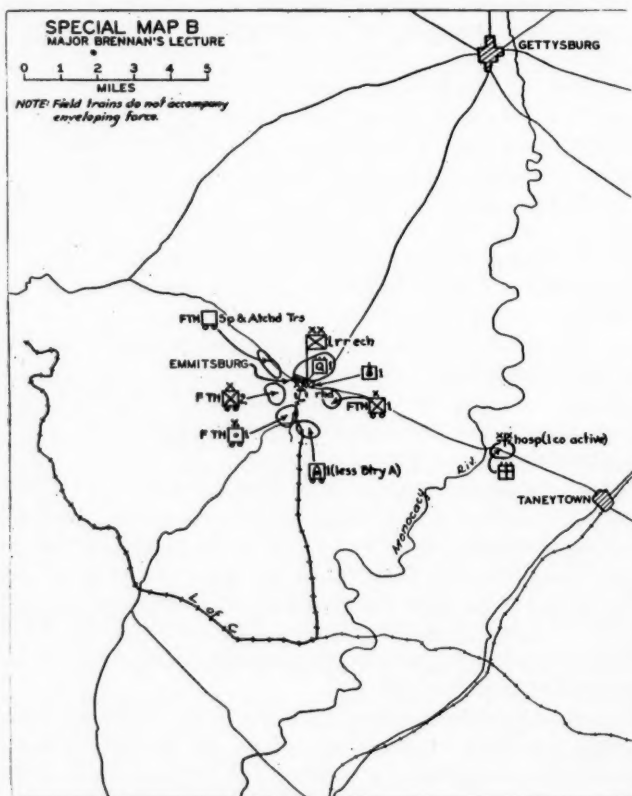
Maintenance of direction is one of the most difficult details of night operations. Therefore special precautions should be taken to obviate the difficulty. Airplane photographs of the area of operation furnish a wealth of detail of value to leaders in planning and conducting operations. These may be supplemented by sketches showing routes, distances and compass bearings. Last, but not least, routes should be plainly marked, guides furnished and sentries or barricades placed at road intersections which offer possibilities of error in direction. Troops should march at night at reduced distances in order to prevent a loss of cohesion in the column. Full use should be made of roads, stream lines, fences, and prominent land marks to assist in maintaining direction.

Night marching is very fatiguing to all concerned. Every means should be employed to reduce the discomfort of night marching. Unnecessary animals and motors should be removed

from foot columns. Whenever possible reduce the load of the foot soldier. Rest him well and feed him before commencing the march.

Security for the column must be provided. In the usual development at night, distant security is provided by the higher echelon of command. Local security is provided by the column commander. This local security at night will consist almost entirely of riflemen, antitank and antiaircraft units. Security elements during a night operation are considerably reduced in size, operate at greatly reduced distances from the main body and rely entirely upon the bayonet for the reduction of hostile interference.

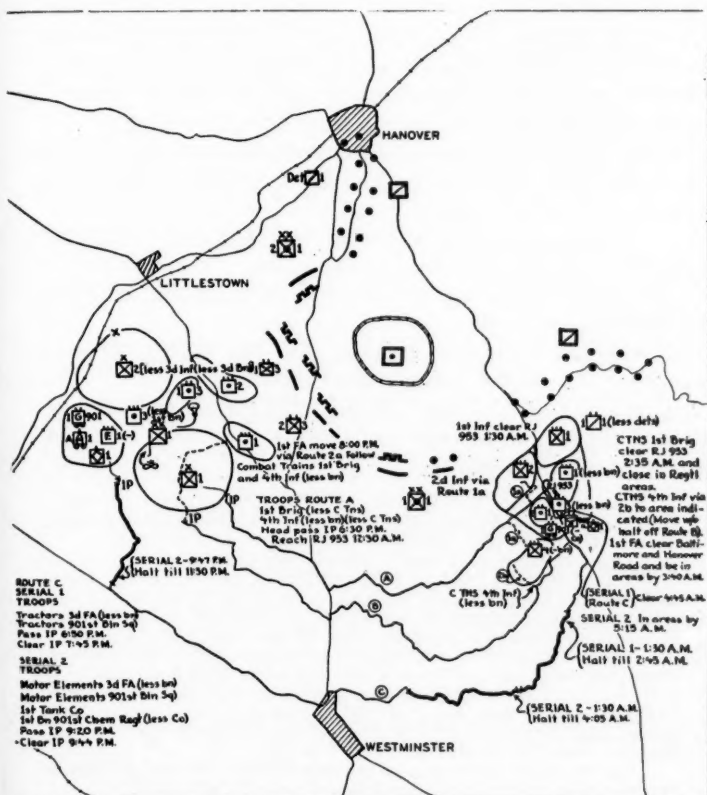
Reconnaissance both by day and by night cannot be too highly stressed. It is usually better to reconnoiter just before



and just after dark in order to observe the change in outline of prominent objects brought about by darkness.

Means for recognition or identification of individuals and patrols of the various units in the area must be provided. This may be accomplished by white arm or hat-bands or similar visual sign, and by passwords or countersigns or similar sound signals. These items should be prescribed by the higher commander in order to insure coordination. Usually the sound signal is passed on by word of mouth and does not appear in the written orders.

Terrain of a rough or wooded nature should be avoided during night operations, because it increased the difficulties without compensating benefits.



Those night operations which are carefully planned and properly executed will usually produce results far out of proportion to the means and energy expended. Where the principles of night operations are ignored or neglected the result is often a defeat far more disastrous than it would probably have resulted had the operation been undertaken by day.

We will continue this discussion by applying the principles mentioned to a definite situation:

1. SITUATION.—*a. Maps.*—Special Map.

b. Advance of the 1st Division.—Early on 2 November the 1st Division, reinforced, marched east from its bivouac south of Harney (352-736) in five columns.

c. Mission.—The mission of the 1st Division was to capture the high ground in the vicinity of Wentz (379-735)—West Manheim (379-737).

d. Events prior to noon, 2 November.—(1) Early on 2 November a hostile force estimated to be a brigade of infantry, reinforced by some cavalry and about one regiment of light artillery, interposed itself between the 1st Division and its objective.

(2) The cavalry, Reconnaissance Detachments No. 1 and No. 2 and the 3d Infantry (less one battalion), attacked to develop the hostile situation.

e. Situation at noon, 2 November.—(1) *Own troops.*—(a) Our advanced elements have been stopped along the line shown.

(b) The 1st and 2d Brigades (less detachments) have assembled in areas as shown.

(2) *Enemy.*—Reports indicate that the hostile force is organizing the ground for defense as shown.

2. COMMANDER'S PLAN.—Based upon the above situation, Major General A announced the following directive to his Chief of Staff at noon, 2 November:

To attack early 3 November, enveloping the enemy south flank from the vicinity of Manchester (382-729) and capture the high ground: Wentz (379-735)—West Manheim (379-737).

Essential elements of enemy information: (omitted).

The 2d Brigade, employing four battalions, to continue its attack and make its principal effort at daylight tomorrow on its north flank; a light regiment and medium battalion of field artillery, and a chemical company attached. Demonstrate on north flank late this afternoon.

The enveloping force consisting of: 1st Brigade, all the field artillery except that attached to 2d Brigade, the tank company, balloon squadron, and two chemical companies to move under cover of darkness tonight to the vicinity of Manchester, attack early tomorrow and capture high ground near Wentz and West Manheim. Have Brigadier General "1st Brigade" meet me at Manchester at 1:30 PM.

Cavalry protect the area of the enveloping force against hostile ground reconnaissance and when relieved protect right flank.

Particular attention to be paid to antimechanized protection of the enveloping force, including its movement tonight.

Division reserve: a regiment (less battalion) of the 2d Brigade and one chemical company; to be located generally in rear of the enveloping force by daylight.

(Administrative matters omitted).

Based upon detailed reconnaissances, and after consultations with various staff officers and commanders, the following order for the development for attack was issued:

FO 3.

Maps: Operation Map (Annex 1).

1. Situation unchanged.
2. Movements of enveloping force to attack assembly positions will be made in accordance with Operation Map (Annex 1).
3. a. The division reserve, employing not to exceed three rifle companies as a north flank guard along the route: UNION MILLS—RJ 586 (370-725)—RJ 709 (370-725)—BACHMAN MILLS—RJ 500 yards SW RJ 770 (375-725) will protect the march of the enveloping force from the north, as follows:

West to UNION MILLS until midnight 2-3 November

West to RINEHART ROAD (incl) until 1:00 AM

West to RJ 709 (370-725) until 2:00 AM

West to BACHMAN MILLS (375-725) until 3:00 AM.

The div reserve (less flank dets) will assemble in the area shown prior to 3:00 AM, 3 November, and will establish a cordon defense against mechanized vehicles at road junctions and crossroads of roads leading into assembly area from SNYDERSBURG (incl) on the south, to road junction 2500 yards southwest of road junction 953 (north of MANCHESTER) on the north.

The north flank guard will not cross Route A before 2:00 AM, 3 November.

- b. 1st Sq 1st Cav, reinforced (less $\frac{1}{2}$ Tr A), prevent hostile ground reconnaissance west and south of the line: ALESIA (385-730)—RJ 712 (385-735)—EBBVALE (excl), $\frac{1}{2}$ Tr A west of line now held.
- c. Rec Det No 1 (less artillery) prevent hostile ground reconnaissance south of the line: EBBVALE (incl)—present line held to RINEHART ROAD (incl). Rec Det No 2 revert to 2d Brig.
- d. Units of 2d Brig [less 4th Inf (less 1 bn)] and attached troops will be east of the BALTIMORE-GETTYSBURG TURNPIKE by 11:30 PM.
- e. Air Service: Maintain liaison with and report location of enveloping force every two hours after 8:00 PM, 2 November.
- f. 1st AT Bn (less dets) protect troops moving via Routes B and C and upon reaching assembly area establish cordon defense of area at road junctions and crossroads of roads leading into the area from ALESIA (incl) on the right (east) to SNYDERSBURG (excl) on the left (west).
- g. Prov Bn 104th CAC (AA) (less dets) will furnish machine-gun defense for movement of foot troops and animal-drawn combat trains.
- x. (1) The enveloping force will take every precaution to preserve secrecy during the movement and in MANCHESTER assembly area.
 - (2) Commanders of columns on Routes A, B and C.
 - Route A: CG 1st Brig.
 - Route B: CO 1st FA.
 - Route C: CO 3d FA.
 - (3) All troops will be ready to march at any time after dark tonight.
 - (4) Weapons will be kept unloaded during movement to the assembly positions.

4. Omitted.

5. a. Radio silent in all units moving toward MANCHESTER.

b. CPs:

1st Div: No change until 5:00 AM, 3 November.

1st Brig: En route.

2d Brig: No change.

Adv. Msg. Center: MANCHESTER—now open.

A,
Maj. Gen., U.S.A.,
Comdg.

Situation, 1st Brigade.—Brigadier General "1st Brigade" accompanied Major General A on his reconnaissance of the area north of Manchester during which the plan of attack was discussed. Shortly after 2:00 PM, Colonels "1st and 2d Infantry" reported to Brigadier General "1st Brigade" in the Manchester area and received the brigade commander's instructions for the attack, which are summarized as follows:

"This brigade will attack at 6:40 AM, 3 November and capture the high ground in the vicinity of Wentz—West Manheim.

"Formation: Regiments abreast, 2d Infantry on the left.

"Boundary: The road: Manchester—Melrose—Wentz, to 2d Infantry.

"Line of Departure: The Bachman Valley R.R.

"Reserve: One battalion, 2d Infantry, in the vicinity of CR 937 (387-733)."

Based upon the situation described above, we are concerned with discussing the execution of a specific night development. The 1st Division has made certain arrangements with a view to carrying out an attack shortly after daylight tomorrow. Other arrangements and movements must be completed before this attack can be launched. How shall we describe the situation of the division at noon, 2 November in the terminology of development? The division is partly developed. The 2d Brigade (less dets) is in its assembly position. Its development is or is not complete, depending on the state of readiness of the units in the brigade to move to the line of departure. The 1st Brigade is not in its assembly position. So far as the movement of its mass is concerned, development is for the present suspended. However, reconnaissances and other preliminaries are in progress. These actions are considered a part of development.

Plan of development, 1st Brigade.—Brigadier General "1st Brigade" having returned to his command post and having received the division order for the movement of his brigade, is now ready to complete his own plan of development.

Basis of plan.—The plan of development is based upon the plan of attack. In working out this plan of development the brigade commander must visualize the location and movements

of his units in the attack, then in assembly positions. He will then plan the distribution of units in the march columns so as to facilitate their orderly deployment from march to attack formation. March columns should be arranged so that there will be no crossing of columns nor cross-country movement in the final deployment.

Line of departure.—The railroad between CR 735 (383-734) and Ebbvale (379-731) offers a suitable line of departure. It is now in the possession of the cavalry, is easily located on the ground and maps, and is approximately perpendicular to the direction of attack.

Formation.—Due to the short distance to the division objective and the configuration of the terrain it is believed that the brigade should push in vigorously on a broad front. There we attack with regiments abreast. Had the objective been deeper within the hostile area it would have been preferable to attack with regiments echeloned to the right. The formation adopted is considered unusual for this type of attack.

Reserve.—In view of the fact that the 1st Infantry will make the main attack we should take our brigade reserve from the 2d Infantry. It can be foreseen that this reserve will probably be used late tomorrow to extend the envelopment to the right and that we should have it protect the right flank of the brigade. We therefore attached a platoon of antitank guns, howitzer platoon and located the reserve (a battalion 2d Infantry) in the vicinity of CR 937 (387-733).

Formation of march column.—In view of the final development desired, and the road net in the assembly position, the following order of march was prescribed:

ROUTE A

One battalion, 2d Infantry (less C & F Tns and motors)
1st Infantry (less C & F Tns and motors)
2d Infantry (less one bn, C & F Tns and motors)
4th Infantry (less one bn, C & F Tns and motors)
Antitank company, 4th Inf (less one plat) and motors 4th Inf
Antitank company, 1st Inf and motors 1st Inf
Antitank company, 2d Inf (less one plat) and motors 2d Inf.

ROUTE B

Combat Trains, one battalion, 2d Infantry
1st Field Artillery
Combat Trains, 1st Infantry
Combat Trains, 2d Infantry (less one battalion)
Combat Trains, 4th Infantry.

Brigadier General "1st Brigade" would prescribe the order of march of the brigade combat trains in column on Route B.

He would then arrange with the column commander for the preservation of the order of march in that column.

Security for the march is provided as follows: North flank by counterreconnaissance screen of reconnaissance detachment and cavalry; to the front by cavalry and battalion 2d Infantry; to the south by columns on Routes B and C and to the rear by the antitank units of the brigade.

The battalion 2d Infantry leading the column would dispose its force as follows: Antitank platoon by bounds in advance, one rifle platoon, 25 to 50 yards distance; one rifle company (less one platoon), 300 to 400 yards distance, two rifle companies, machine-gun company howitzer platoon. The howitzer platoon will be followed without distance by the rest of the brigade.

Routes to assembly positions.—The division has prescribed the routes as far as RJ 953 and will mark them and furnish guides thereto. The brigade should prescribe routes for regiments within the brigade assembly position. In this situation, the problem is quite simple as the road net lends itself naturally to an orderly deployment of the march column. The brigade commander directs that guides meet the foot troops and motor sections of the brigade reserve battalion (one battalion of the 2d Infantry) and 1st Infantry at RJ 953 and 2d Infantry (less one battalion) at RJ $1\frac{1}{4}$ miles southwest of RJ 953, 4th Infantry at RJ $1\frac{1}{2}$ miles southwest of RJ 953. Guides for combat trains as follows: Brigade reserve battalion (one battalion of 2d Infantry) and 1st Infantry at RJ 953 and of 4th Infantry at RJ one mile southwest of RJ 902 (383-727). Regimental commanders will, in this situation, provide for marking of routes within the brigade assembly position and only one unit uses any one road.

Miscellaneous instructions of the brigade commander.—In order to prevent promiscuous rifle firing and consequent lack of surprise, the brigade commander will issue instructions to prevent firing by units in his column.

Security in the assembly position is insured by prescribing the line held by the cavalry from Alesia to Ebbvale as an outpost line of resistance. The battalion of 2d Infantry in brigade reserve is ordered to outpost the line from Alesia to RJ 775. Each regiment will occupy its line of departure by at least one company of infantry and one antitank platoon immediately upon arrival in the area.

Daylight reconnaissance has been restricted to battalion and higher commanders. This restriction permits these commanders to bring small parties with them to act as guides.

In order to facilitate control on the march the brigade commander directs that a representative of each commander accompany the next higher commander on the march and that all company and higher commanders wear white arm bands on both arms and march at the head of their unit.

In order to facilitate control in the assembly position the brigade commander announces command posts and directs that they be occupied to include battalions by representatives of commanders after 6:00 PM. These representatives to report to the brigade command post as liaison agents as soon as their own command post is organized.

In order to relieve the loads carried by the men and decrease confusion in the new assembly position the brigade commander directed that packs be left behind and extra ammunition issued before the march begins. It would also help to decrease confusion in the new assembly position if one cooked ration could be issued before leaving present area. Both of these details may be decided by the brigade commander, but will naturally have to be coordinated with G-4 of the division, who will have to assist in delivery of ration and bring up the packs later.

In order to increase the comfort of the troops the antitank units and motors of the infantry units were formed in a separate serial at tail of column. They will not be required on the march, or in assembly position much before dawn.

The regimental and battalion commanders.—The duties of subordinate commanders parallel closely those outlined for the brigade commander. Each commander prescribes his own order of march and issues special instructions for carrying out the wishes of the brigade commander. Every preparation for the attack, which can be accomplished before the march starts, should be accomplished. Howitzer platoons should join the battalions to which they will be attached at once and march with those battalions.

In addition to normal attack plans, each battalion designated as an assault battalion should prepare plans for launching its attack at 6:40 AM, 3 November, in case of fog or heavy mist. This plan will have the characteristics of a night attack plan and must be prepared in advance.

MILITARY INTELLIGENCE

(1937)

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SECTION I

Introduction

	Paragraph
Introduction	1

1. INTRODUCTION.—*a.* The principles set forth herein govern in all arms and units for which intelligence staff sections are provided.

b. Special methods peculiar to the various arms which are not covered in these regulations are prescribed in their respective regulations.

c. The designations "company," "battalion," etc., apply to corresponding units in arms other than the infantry.

d. The designation G-2 as used in this text applies likewise to the intelligence officer of a force smaller than a division.

SECTION II

Military Intelligence Defined and Classified

	Paragraph
Definition	2
Classes	3

2. DEFINITION.—*a.* Military intelligence is the most complete and most authentic available information of a possible or actual enemy, or theater of operations, together with

the technical, tactical, and strategical deductions drawn therefrom.

b. Military intelligence includes information concerning the enemy's capabilities to oppose the will of the commander of our own forces, as well as all that relates to the territory controlled by, or subject to, the influence of the enemy.

3. CLASSES.—Military intelligence may be divided into two general classes: War Department intelligence, and combat intelligence.

a. *War Department intelligence.*—War Department intelligence is the military intelligence produced under the direction of the War Department General Staff in peace and in war. It deals principally with subjects that are strategic in nature and, to a less extent, with others that have to do with tactics, technique, and supply. In the War Department intelligence sections of most powers, every country and theater of operations is studied; more particularly, those in which it seems probable that military operations may be conducted at some future time. Studies are made of the strength, organization, armament, and equipment; technical and tactical supply methods; the personality of high commanders; the resources, the economic and political conditions and aspirations; the history and national psychology of possible enemy countries; and the military geography and topography of all territory controlled by them. This intelligence furnishes the basis for projects of operations, and for changes in organization, training, armament, equipment, and other supplies, to meet the tactical methods of a particular enemy (possible or actual). The results of these studies are placed in readily accessible files, some of which are published to the War Department General Staff, to high commanders and their staffs, or to those particularly concerned.

b. *Combat intelligence.*—Combat intelligence is the military intelligence produced in the field after the outbreak of hostilities. Usually this class of intelligence is confined to the location, strength, composition, dispositions, movements, armament, equipment, supply, technique, tactics, training, discipline, morale, and condition of the enemy forces opposing a combat unit, and the terrain over which a combat unit is operating or is to operate.

SECTION III

Relation of Command to Combat Intelligence Work

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4. IMPORTANCE OF COMBAT INTELLIGENCE.—*a.* Regardless of what may be the situation confronting the commander, an intelligent decision requires consideration of four principal factors, namely:

- (1) The mission.
- (2) The means available for the execution of the mission.
- (3) The enemy who must be overcome in order to accomplish the mission.
- (4) The terrain over which the operation must be executed.

b. The soundness of the commander's decisions will depend largely on the accuracy of his knowledge as to the real value of these factors, and on his ability to determine correctly the relative importance of these factors in a given situation. The *enemy* is the factor which determines the real significance of the other three factors. If there were no enemy to overcome there would be no difficulty, in most cases, in the accomplishment of any *mission*. If the enemy is relatively so weak that he is incapable of offering effective opposition, there is no reason, in most cases, to be concerned about the *means available*. *Terrain* is significant in so far as it bears on an actual or potential tactical or strategic situation, which situation is the direct result of what the enemy has done or may do.

c. Nevertheless, a commander who bases his decision principally upon the action of the enemy, or who constantly awaits additional information of the enemy before making a decision, subordinates his will to that of the enemy. Consequently the decision, while it takes into consideration known facts about the enemy, is based primarily upon the mission and usually amounts to indicating the method by which the commander intends to accomplish that mission. (In cases in which the commander abandons his mission, he

adopts a new mission upon which he bases his decision.) Having made his decision, the commander will expect combat intelligence to *furnish him that information which will permit him to conduct his maneuver and accomplish his mission regardless of what the enemy may do*, preventing the latter from surprising him by an unforeseen move. Consequently, corresponding to each decision of the commander and closely coordinated therewith, there will be a definite combat intelligence plan designed to obtain the definite information which the particular situation demands.

d. The difficulties involved in obtaining adequate information, and in arriving at reliable conclusions, are many. These difficulties are due principally to the fact that the interests of the enemy demand that he shall have made every possible effort to foil our attempts to gain information. He will conceal his movements by night marches and by counter-reconnaissance measures involving the use of both ground and aerial agencies; he will make use of camouflage; he will resort to any measures that offer a reasonable hope of attaining secrecy or surprise; he will try to do the thing his opponent least expects; and he will often resort to deception. The opposition of the enemy's interests to our own, as well as the independence of his will, must necessarily make the enemy more or less an *unknown factor* in every situation. It is the object of combat intelligence work to reduce as far as possible the uncertainties regarding the enemy.

5. RESPONSIBILITY OF COMMAND.—Since combat intelligence constitutes a vital element in the commander's estimate of the situation leading to any tactical or strategic decision, it is a basic function of command to initiate the search for information of the enemy necessary for such decisions. In addition, commanders will receive reconnaissance missions from higher authority. These may, or may not coincide with their own requirements for information. In the theater of operations each command, therefore, is charged with the continuous execution of the necessary measures for the collection of military information within its own zone of operations. The zone, in width and depth, in which a commander is responsible for the search for information, may be designated by higher authority, or may be the subject of decision by the commander. The most important

consideration in either case is to cover a zone of sufficient width and depth, by the employment of all available means and *through liaison with higher and adjacent units*, to prevent tactical surprise. In determining this zone the commander gives due consideration to the mobility of any forces the enemy may possibly possess, particularly any mechanized and motorized units, as this affects directly the distance to which it is necessary to conduct the search for information.

SECTION IV

Intelligence Methods

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Method of intentions	6
Method of capabilities	7

6. METHOD OF INTENTIONS.—Two schools of thought exist in modern armies in regard to intelligence. These may be called the *Method of Intentions* and the *Method of Capabilities*. The former is the method used by the elder von Moltke; the latter is the method of Napoleon. The *Method of Intentions*, which has been used by the American Army until recently, endeavors to ascertain or deduce what the enemy intends to do. From knowledge of the hostile dispositions it endeavors to reconstruct the enemy's intention. If information is lacking, it establishes the enemy's probable intention, in part, by making an estimate of what seems to be most advantageous for him. In other words this method tends to attribute to the enemy the intention which we think he ought to have. It, therefore, will lead to positive conclusions in the majority of cases. However, history shows that the soundness of these conclusions is often questionable.

For example, in case the enemy's forces are disposed in such a manner as to favor an envelopment of our right flank, and if all the indications point that way, using the method of intentions, we conclude that the enemy's intention is to envelop our right flank. We may be badly surprised. Perhaps the enemy has been deceiving us; perhaps he will readjust his dispositions during the night and strike our other

flank tomorrow morning. This is precisely what the British did to the Turks at Kut-al-Amara in September, 1915. Even if the enemy did have the intention we attribute to him, he may change his mind and issue a counter-order. That is what the German commander, von Bulow, did at the Battle of Guise in 1914. Within a few hours he had four different intentions for the operations of his army the next day and he issued four different orders. Even if the French had obtained an authentic copy of von Bulow's orders, they would have had only one chance in four of being right. Of course this is an extreme case; nevertheless it proves that information bearing only on the intentions of the hostile commander is not enough. It may be misleading. It is undeniable, however, that at times the *Method of Intentions* has given good results. The intentions of a hostile commander in some cases have been so definitely established, as to warrant a commander basing his maneuver upon them. Examples are to be found in the campaigns on the Eastern Front in 1914, when the Germans regularly intercepted Russian orders sent out by radio. When they found that Russian execution corresponded to the orders, they could place considerable confidence in these intercepted orders as revealing the enemy's intentions. There was always the danger, however, that the Russians would realize this and mislead the Germans completely by issuing false orders. Likewise, the operations of the French Fourth Army in Champagne in July 1918 are cited as an example in which the hostile intention was definitely and accurately established. However, in this case, in which the French established the frontage, date, hour, and strength of a German attack, the French commander based his important decisions as much on the capabilities of the enemy as on his intentions. And even if this example—that of the French—should be entered on the credit side of the ledger for the *Method of Intentions*, the action of the Germans in the same battle is a striking proof of its fallacy. The Germans assumed that the French would stand and fight on their forward position. They were so sure of this that they did not pay attention to other possible lines of action, and were completely surprised when the French withdrew from their forward positions and made their stand farther in rear. The

result was a German disaster. The example clearly shows the principal danger of the *Method of Intentions*—that of reaching an unjustified and preconceived idea of what the enemy will do, and failing to recognize the fact that other lines of action remain open to him. In its last analysis, the *Method of Intentions* resolves itself into the placing of oneself in the position of the enemy. This process is difficult because one can seldom know the physical and mental condition of the opponent, his reactions, and his process of reasoning. The best chance of success is when one has an intimate knowledge of the mental process of the opposing commander, as well as of the tactical doctrine of the enemy.

7. METHOD OF CAPABILITIES.—The *Method of Capabilities* takes into consideration all the lines of action open to the enemy. It does not entirely discard from consideration any one of these lines of action, or capabilities, until it appears that he is *incapable* of adopting it; that his dispositions are such that even if he desires to adopt it, he is physically incapable of so doing. Based on information arriving successively, the *Method of Capabilities* endeavors to eliminate safely from consideration certain lines of enemy action. It thus narrows down the enemy's capabilities. The ideal, of course, is to narrow these capabilities to one. If this cannot be done, and the ideal seldom can be achieved, it may be possible, without completely discarding from consideration all other enemy lines of action, to reach a conclusion that one line of action is more probable of adoption than the others. Likewise, a certain priority may be indicated in cases in which it is impossible to conclude that any *one* capability is more probable of adoption than the others. For example, the conclusion might be drawn that Capabilities 1 and 2 are more probable of adoption than Capabilities 3 and 4. Even if no priority of any kind can be indicated, the method provides the commander with an *accurate limit* concerning what the enemy may do, and it is this quality of accuracy which is its most desirable characteristic. It thus tends to avoid surprise, while in no wise preventing a commander, in the full knowledge of risks incurred, from making a bold decision. He is in a position to "weigh the risks; then risk the chances," if he so desires. To sum up, the *Method of Capabilities* always gives as good results as the *Method of*

Intentions, and at times its results will be better. The *Method of Capabilities* is the method now taught at The Command and General Staff School.

SECTION V

Essential Elements of Enemy Information

	Paragraph
Definitions	8
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Publication of essential elements of enemy information	10

8. DEFINITIONS.—*a. Enemy capabilities.*—The lines of action open to the enemy which may affect our mission in any tactical or strategic situation are called the *enemy capabilities* for that particular situation. It is important in the highest degree for the commander to learn as soon as possible along which of these lines the enemy is acting, or preparing to act. The term capabilities includes not only the general lines of action which will affect our own plans (such as attack, defense, withdrawal, etc.) but also the *enemy capabilities within* each of these general lines of action. For example, within the general line of action of an attack there are numerous capabilities, such as an attack today, an attack early tomorrow, a wide or close-in envelopment of our left flank, a piecemeal attack against our front, etc.

b. Essential elements of enemy information.—As the name indicates, the essential elements of enemy information constitute that information of the enemy which a commander must have to make a decision, conduct a maneuver, or to enable his staff to formulate the details of a plan. These essential elements of enemy information will usually be in the form of inquiries concerning which of his capabilities the enemy will put into execution. The responsibility for the proper performance of intelligence duty, and therefore for the designation of the essential elements of enemy information, rests with the commander.

9. PURPOSE OF DESIGNATION.—Essential elements of enemy information are designated for the purpose of focusing the attention and activities of all intelligence agencies on that information, which, from the command point of view,

is most important at that particular time. These agencies then concentrate on getting the necessary information *in time for it to be of value*. Designation of essential elements of enemy information does not limit the activities of agencies to the collection of information bearing on these elements alone. It is the duty of every agency to collect and transmit all classes of enemy information. This, however, must not interfere with the principal mission—obtaining information in regard to the essential elements.

10. PUBLICATION OF ESSENTIAL ELEMENTS OF ENEMY INFORMATION.—The essential elements of enemy information are used by the intelligence section of the staff as a basis for the intelligence plan. If they are complete as to enemy capabilities and correctly analyzed, reconnaissance missions also will be complete. The essential elements of enemy information are published in the Intelligence Annex to the field order. In case no Intelligence Annex is issued, reconnaissance agencies are informed as to the essential elements by means of fragmentary messages or orders.

NIGHT OPERATIONS

(1937)

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Night operations—General	1
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Objectives	4
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1. NIGHT OPERATIONS — GENERAL.—*a. Definition.* — Those tactical and strategical operations planned with a view to utilizing darkness as cover from hostile observation, fire or both are termed night operations. The same principles applying to night operations also apply to those operations planned with a view to utilizing dense fog for cover.

b. Importance.—The effectiveness of modern observation aviation for close and distant reconnaissance makes it extremely difficult to move large bodies of troops secretly by daylight either on the battlefield or for strategical purposes. The power of modern combat aviation and mechanized forces reduces the security formerly enjoyed by large forces when out of contact with the enemy. The increasing employment of automatic weapons and effectiveness of artillery fire render impossible the movement of troops over open ground by daylight on the battlefield until the effectiveness of the enemy fire has been reduced. Darkness, dense fog, and smoke reduce the capabilities of all these modern weapons to a considerable degree. Night marches out of contact with the enemy are now the normal procedure. We may therefore expect that in the future, night operations will assume an increasing importance in both tactical and strategical plans.

c. Difficulties.—Darkness not only reduces the ability of the enemy to interfere with our operations but it also places upon our troops many serious handicaps. Night movement either across country or on roads is most fatiguing. The foot-soldier stumbles, collides with his neighbor, becomes sleepy, is prone to straggle, loses his sense of

direction and becomes bewildered. Under these conditions troops may be maneuvered only with the greatest difficulty. In case of surprise troops may be stampeded. Even the leaders may lose direction and fail to recognize landmarks designated for their guidance. These difficulties are not insurmountable, but must be recognized and provided for by proper training. It has been found that well disciplined troops trained in night operations and properly rested possess a remarkable ability to operate at night and a spirit of invincibility which often lead to remarkable successes.

d. When employed.—Night operations are employed to effect surprise, minimize losses, and avoid hostile observation, fire or interference. These operations usually take place under general situations as follows:

(1) Operations carried out behind covering forces, such as marches and reliefs.

(2) Operations unprotected by other troops such as attacks and withdrawals.

e. Preparation and plans.—The plan of the commander ordering a night operation should provide for:

(1) A definitely prescribed objective or mission.

(2) Sufficient time for preparation by subordinate commanders, including reconnaissance by ground and air and marking of routes.

(3) The allotment of troops to participate in the operation.

(4) Coordination with neighboring troops.

2. NIGHT ATTACKS.—*a. Definition.*—A night attack is an attack launched under cover of darkness for the purpose of seizing an objective before daylight.

b. When employed.—Night attacks may be employed: to gain a position or line of departure preparatory to further operations by daylight; as a reconnaissance measure to discover the enemy situation; to drive in the enemy's covering forces; as a feint to attract enemy reserves; or to surprise a semi-civilized, or poorly trained or disciplined enemy.

c. Characteristics.—(1) *Surprise.*—Surprise may be more easily effected at night (or in a dense fog) and may lead to important developments, especially against troops of inferior quality. Conversely, if the attacker allows himself to be surprised, the result may be infinitely more

disastrous than in a daylight defeat. Firing by the attacking force is ineffective at night and a source of danger to the attacker in that friendly troops may be fired upon; surprise is lost and the flashes give the enemy something at which to aim.

(2) *Exposure*.—The attack is favored by the reduced effectiveness of the enemy observation both from the air and the ground. The line of departure usually is much nearer the enemy than in a daylight attack, because the attacker enjoys comparative immunity from the defender's long-range fires and a shorter exposure to his short range fires.

(3) *Maneuver*.—After the advance has commenced, it is almost impossible for the commander of the attacking force to maneuver his force because of the difficulty of communication and observation. It is very difficult to direct reserves against points where they are needed during a night action. In view of these facts, night attacks require the most careful prescription of initial dispositions, directions of attack, and coordination and supervision. The attacking force is disposed in less depth than by daylight. Great care must be taken to insure that directions of night attacks of units do not converge because converging night attacks often lead to disastrous results.

(4) *Control*.—The problem of control, always difficult in battle, is increased by darkness or fog. This difficulty is further increased when several commanders are involved, when troops are poorly trained or are tired, and when the attacking force is improvised of mixed units. Troops selected to make night attacks should be fresh and should not have to march long distances to reach suitable assembly positions. The problem of control is greatly simplified if the objective is some easily identified terrain feature which may be approached along well-defined routes easily followed at night. The retention of column formations, until discovered by the enemy or until the assault position is reached, also facilitates control.

(5) *Exploitation*.—Exploitation of success by night is very difficult and may lead to serious disorganization. It should be deferred until daylight. When conditions favor exploitation, the attack should be timed to reach the objec-

tive just before daylight; otherwise troops should have two or three hours of darkness, after arriving on the objective in order to prepare a defense against counterattack. This characteristic is not so pronounced in attacks launched against a defeated and retreating enemy.

(6) *Preparation.*—Considerable time is required for adequate preparation for night attacks. Reconnaissance, both air and ground must be thorough and should be made both by daylight and after dark. Even the small units (platoons) should have at least two hours of daylight for reconnaissance and issuance of orders. The difficulty of distinguishing persons, positions, objectives and directions after dark must be provided for by every means available. Airplane photographs of the objective selected can be provided in about three hours and are of great assistance in planning the details of the attack. Due to the characteristics above mentioned, only limited objective attacks should be made at night.

d. *Phases in the night attack.*—A night attack may involve the execution of all steps or phases of the daylight attack, or some of them, such as the approach march, may be carried out by day. Frequently, from the view point of the attacking infantry, the assault phase only is involved. Phases executed by day conform to the principles and methods prescribed for daylight attacks. Attacks at dawn are not included in "night attacks" but the approach march, assembly and other preliminaries which are carried out during darkness are governed by the principles of night operations.

e. *Influence of weather.*—On a bright night with the wind blowing toward the enemy, surprise attacks rarely are possible since airplane and other observation is possible and the sounds of moving troops can be heard at great distances.

Dark and rainy nights make movements and coordination most difficult but are most favorable for surprise attacks, especially by small units over terrain which is thoroughly known.

In general, weather and ground conditions which render control, maintenance of direction, movement and communication more difficult are usually compensated for by an increase in the possibilities for surprise.

f. Influence of terrain.—Night attacks depend more upon the cover of darkness for concealment and protection than upon terrain features. The greatest difficulties to be overcome are the loss of direction and the intermingling of troops and columns. Therefore, where there is a choice of terrain over which to make a night attack, that portion which permits of rapid, free and unhampered movement should be chosen rather than that which will afford better protection from the enemy's fire and observation.

3. STRENGTH AND COMPOSITION OF THE ATTACKING FORCE.—*a. Strength.*—Because of the difficulty of controlling and coordinating night attacks and the difficulty of gaining surprise when large forces are used, only forces of comparatively small size are apt to succeed. The strength employed in any particular situation is determined, in general, by the same considerations which apply in daylight attacks. However, the element of surprise and the protection of darkness reduce the attribution by enemy fire during the "approach march" and "advancing the attack" phases below that experienced in daylight attacks. The estimated size of the defending force on any particular objective may be used as a basis for calculating the size of the attacking force. Due to the increased difficulties of control and coordination a night attack by a force larger than an infantry brigade will rarely succeed.

b. Composition.—(1) *Infantry.*—Infantry is the best suited of all arms to overcome the difficulties of night attacks. It depends for success upon its ability to assault the enemy quietly and rapidly with the bayonet.

(2) *Artillery.*—The artillery support does not differ in principle from that of daylight attacks, except that, since close support by observed fire is not possible, the maximum reliance must be placed on prearranged fires. If the situation permits, firing data should be prepared before dark and checked by registration. Data can be secured from maps, if accurate maps of the proper scale are available, but the registration method is preferable and should be employed whenever practicable. Usually the artillery units in support of night attacks will continue their normal fires until the attack is discovered by the enemy. It should be prepared to place defensive fires for the protection of the objective

after its capture by the infantry. Data should also be prepared for fires on other targets to meet possible contingencies foreseen by the commander of the night attack force.

Artillery may be used to deceive the enemy by threatening points other than the one to be attacked. However, any change from normal fires prior to the discovery of the attack by the enemy may destroy surprise and lead to failure.

(3) *Tanks*.—Due to poor observation and the difficulty of coordinating their advance with the infantry, the use of tanks in night attacks generally will be confined to occasions when there is exceptionally bright moonlight, or where the foreground can be well lighted by artificial means, when the terrain presents few obstacles to their advance, and the noise of their movement up to the attack positions can be concealed from the enemy.

(4) *Engineers*.—Engineers may accompany attacking troops in order to open roads, remove obstacles, and assist in preparing positions that are to be held after capture.

(5) *Aviation*.—Aviation assists forces attacking at night by furnishing such observation as is possible. In bright moonlight, observation is fair and movements of formed bodies of troops in open terrain can be observed. When there is no moon, limited areas can be brilliantly illuminated and excellent observation made possible for both air and ground troops by means of parachute flares dropped from airplanes. Flares may also be used to indicate the direction of attack to the infantry by dropping the flares over some point in prolongation of the axis of attack. Lines of limited extent and small areas may be kept illuminated in situations where it appears that material assistance will be rendered ground troops by such action. Whenever used in night attacks, flares should be dropped in such a manner that the enemy will not be furnished illumination to observe the movements of the attacking troops. The area effectively illuminated by these flares is usually a circle whose radius is 1500 to 3500 yards. It must be borne in mind that dropping flares so as not to illuminate attacking troops may be a very difficult matter.

(6) *Cavalry*.—Where cavalry is attached to infantry engaged in a night attack, it generally will be held prepared to exploit the success of the attack by operations beginning

at daylight. It may be used for reconnaissance towards the flank and rear of the enemy's position or for protecting an exposed flank.

4. OBJECTIVES.—In view of the disadvantages to be overcome in night attacks, the following considerations should govern in selecting the objective to be attacked:

- a. A limited objective should be selected.
- b. It should be well defined and easily recognized.
- c. It, and the approaches thereto, should be such as to permit of thorough reconnaissance prior to the attack.
- d. It should be of easy approach, permitting the attack to form up within a short distance of it.
- e. It should not be so deep as to necessitate assaulting two positions to complete its capture.
- f. If artillery is to be used in the attack, the objective must be such that the artillery can reach to the full depth of the objective without being displaced forward during the attack.
- g. Each column should be assigned a definite objective.
- h. Roads, fences, ditches, and hedges leading to the objective are desirable to assist the infantry in maintaining direction.

5. PRELIMINARY ARRANGEMENTS.—Preliminary arrangements for night operations involving combat include the following:

a. *Reconnaissance*.—A thorough and exhaustive reconnaissance of the position to be assaulted and the terrain to be passed over, is made by as many leaders as possible who are participating in the attack. In making the reconnaissance, officers should familiarize themselves particularly with the appearance and relative positions of the objectives assigned the several columns. Each leader should fix in his mind the salient features of the terrain over which his particular unit is to move. He should note the relative distances between conspicuous points of the terrain, and to any obstacles that may be encountered in the advance and in the attack and determine the means necessary to overcome these obstacles.

b. *Assembly positions and line of departure*.—(1) When a movement in march formation proceeds a night assault, the designation of an easily recognized assembly position.

at which the march formation is abandoned and the columns are closed up, verified, and prepared for deployment, is essential. An easily recognized line of departure should be selected, coinciding, if possible, with the assembly position. When assaults are to be made simultaneously against two or more parts of a position, particular care must be exercised to select the assembly positions and lines of departure, so that in the subsequent advance the routes of advance do not converge to such an extent as to bring about an unexpected encounter between the columns in the dark.

(2) The distance of the assembly positions and the line of departure from the hostile position is governed by the nature of the terrain, the character of the enemy's reconnaissance and service of security, the weather, the degree of darkness, and the size of the force employed. At times these localities must be secured prior to the operation, by covering detachments advancing during daylight to seize and hold them until the arrival of the assaulting forces.

c. Routes of advance.—The designation by compass bearing, of all lines of advance, and the marking of roads and routes in rear of the line of departure is desirable.

d. Maintenance of direction and connection.—Provision for maintaining the direction of march of the columns and connections between columns and echelons is necessary. This is usually effected by the employment of guides, compass bearings, and connecting files.

e. Distinguishing mark for the troops engaged.—Each officer and soldier taking part in a night attack should wear a distinguishing mark.

6. CONDUCT.—*a. Formation and maneuvers.*—(1) As the greatest difficulties are caused by loss of direction and through confusion, only the simplest formations and maneuvers should be prescribed. Rarely, if ever, should any but frontal attacks be attempted.

(2) A formation of the infantry in line of columns, covered by scouts, with flanks protected by strong combat patrols echeloned to the rear, and with a small reserve held well in rear and preferably off the axis of the attack, generally will give the best results. The columns should be as few in number as practicable. They should be kept in for-

mation as long as possible, being deployed only when forced to do so or just before beginning the assault.

(3) Deployments are made at shorter distances from the enemy than in daylight and usually just before commencing the assault. The infantry seeks to close with the enemy at once, without fire action, and to destroy him with the bayonet. The assaulting echelon should be stronger and denser, with local supports and reserves held at shorter distances in rear, than during attacks by day.

(4) The general reserve is usually held well to the rear and off the axis of the attack. This prevents the reserve from becoming intermingled with the attackers in case they are driven back, and enables it to counterattack the enemy in flank in case of pursuit.

b. The advance.—(1) The object of the attack determines the hour for beginning the operation. When it is intended to complete the operation under cover of darkness, the hour of commencing the attack should be such as to insure a sufficient period of darkness for the assault and the organization of the objective for defense.

(2) Depending upon the distance of the attacking troops from the line of departure, they are either formed directly along that line, or are marched under cover of darkness to predetermined assembly positions just in rear of it where they are closed up and verified prior to forming for the attack. The march to these positions should be by plainly marked routes and in as few columns as the enemy's fire activities, the terrain, and necessity for rapid movement and deployment permit.

(3) The dispositions to be adopted by the infantry in advancing to the assault from the line of departure depend upon the distance of that line from the enemy's position. If within assaulting distance, the infantry immediately takes up the assault formation; otherwise, the advance to the assault position had best be made in line of columns covered by scouts, each column being assigned a separate well defined objective and route of advance. The advance in line of columns should be continued until the assaulting position is reached or losses from hostile fire necessitate further deployment.

(4) To insure unity of action, the time for the occupation of assembly positions, for crossing the line of departure, and for the delivery of the assault should be stated precisely in orders. A liberal allowance of time should be made for all movements. Under the best of conditions, it is unlikely that the infantry can advance to the line of departure at a rate exceeding one to one and one-half miles per hour. From that line forward, until the assault proper has started, not more than one hundred yards in from six to ten minutes can be made.

(5) During the advance to the line of departure, machine-gun and artillery fire should remain normal. The particular circumstances attending each situation usually will indicate whether the infantry assault should be prepared by artillery fire. Where artillery support is indicated, a short but violent preparation generally will suffice. In any case, however, the artillery holds itself in readiness to intervene promptly and energetically.

c. The assault.—(1) When the attackers encounter the enemy, or arrive within assaulting distance of his position, they must immediately charge, for it is at this time that the enemy's most effective fire can be expected. If the attackers halt to return the fire, the operation probably will end in failure. The assault must be pushed home promptly and the decision sought with the bayonet.

(2) When the enemy is occupying an organized position, hand grenades may be used to smother the trenches just before charging them, but no undue pause should be made for this purpose.

(3) The most important use of the supporting artillery will be found after the assault has been launched, and from this time onward it should be used to the full limit justified by the conditions.

d. Action in case of repulse.—If the attack results in failure, the reserves should cover the retirement promptly. Disorganized elements assemble at designated rallying points under cover of the reserves and defensive fire of the supporting artillery. If the defenders pursue, a flank attack will be very effective, as the enemy's formation under such conditions certainly will be more or less broken.

7. ORDERS.—Orders for night operations involving combat, prescribe the following points in addition to those usually covered in combat orders for attack during daylight:

a. A definite route of march for each column to the assembly position or line of departure.

b. The means of identification.

c. The means of guiding and assisting the command in determining direction and location, and in maintaining connection.

d. A definite objective and position to be carried and held by each column.

e. The action of reserves or other troops against positions likely to enfilade the captured positions.

f. The course of action to be followed in case of success.

g. A rallying point for each element in case of failure.

h. When accompanying fires are employed in support of a night attack, a definite rate of advance should be prescribed for the infantry.

i. Distribution of orders should include all noncommissioned officers in the participating unit.

MAP PROBLEM — A DAYLIGHT MARCH OF A REINFORCED DIVISION

	Paragraphs
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SECTION I

Situation and First Requirement

	Paragraph
General situation	1
Special situation (Blue)	2
First requirement	3

1. GENERAL SITUATION.—*a. Maps.*—Special Map.

b. Boundary.—East and west grid line 775 is part of the boundary between hostile states, Blue (north) and Red (south).

2. SPECIAL SITUATION (BLUE).—*a.* The I Corps is concentrating in the Cumberland Valley east of Carlisle, inclusive, with the intention of advancing in the direction: Mechanicsburg (370-795)—Baltimore. Its command post opens at Mechanicsburg at 7:00 AM, 15 October.

The 1st Cavalry Brigade, operating west of the line: Boiling Springs (355-785)—York Springs (360-770)—Hanover, all inclusive, protects the right of the I Corps, reconnoitering initially to the line: Chambersburg—Hanover.

The I Corps air service is reconnoitering south of the line: Hagerstown (290-710)—Westminster (370-710)—Columbia (410-770).

b. The 1st Division, reinforced.—The 1st Division, reinforced (see Note), Major General A, commanding, completed its concentration secretly by truck and rail in the vicinity of Sheperdstown (370-790), the night 14-15 October.

c. Mission of the 1st Division.—To advance between the Susquehanna River and the line: Boiling Springs—York Springs—Hanover, all exclusive; and within this zone to protect the concentration of the remainder of the I Corps

and prevent the enemy from using the rail facilities at York for the detrainment of large forces.

d. Situation at 2:30 AM, 15 October.—At 2:30 AM, 15 October, Major General A is in possession of the following additional information:

(1) *Enemy.*—Since dark, 14 October, Red aviation has dropped flares at about two hour intervals over York Springs, Dillsburg (365-780), and Newberrytown (390-785). No unusual hostile air activity has been observed over the 1st Division bivouac area. Red combat aviation is known to have taken advantage of favorable opportunities to attack troops on the march and in bivouac. Red horse and mechanized cavalry patrols were encountered during the night by the 1st Cavalry Brigade and the 901st Cavalry Squadron. Information obtained from prisoners, and partially verified by the air service, indicates that at least a regiment of mechanized cavalry at 10:00 PM, 14 October, was near Westminster.

Shortly after dark, 14 October, a force of all arms, estimated to be a reinforced division, marched north in several columns from the area: New Freedom (390-730)—Stewartstown—Parkton, and at 1:30 AM, was going into bivouac southeast of York as outlined on Special Map.

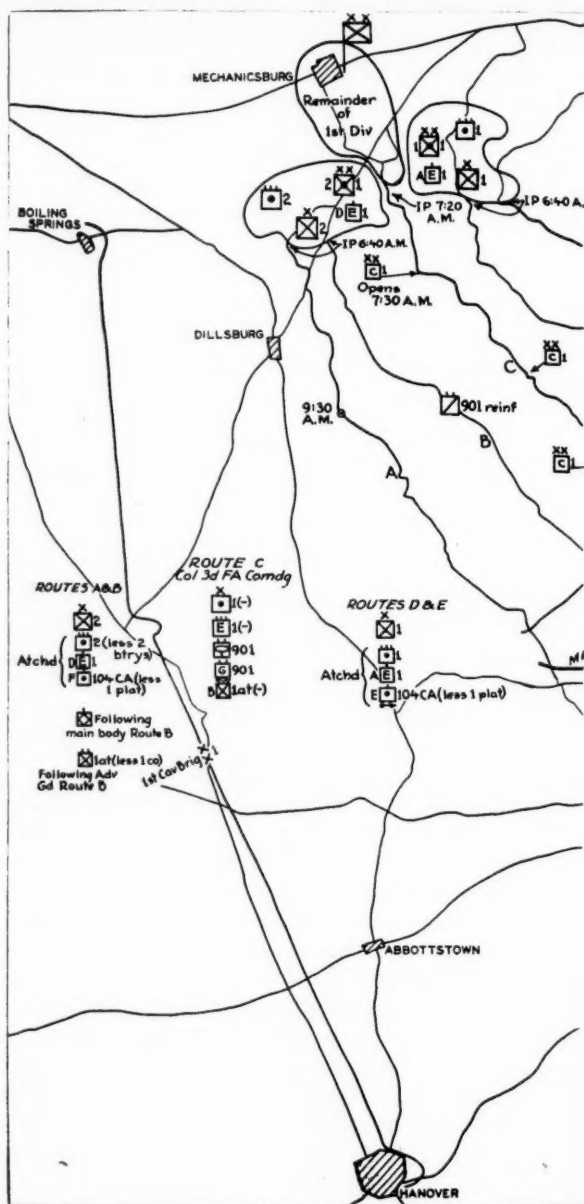
A motorized force of infantry and artillery, estimated to be a reinforced brigade, entered Baltimore from the south, after 11:00 PM, 14 October. At 2:00 AM, the column had not been observed by the I Corps air service searching for same north of the anti-aircraft defenses of Baltimore.

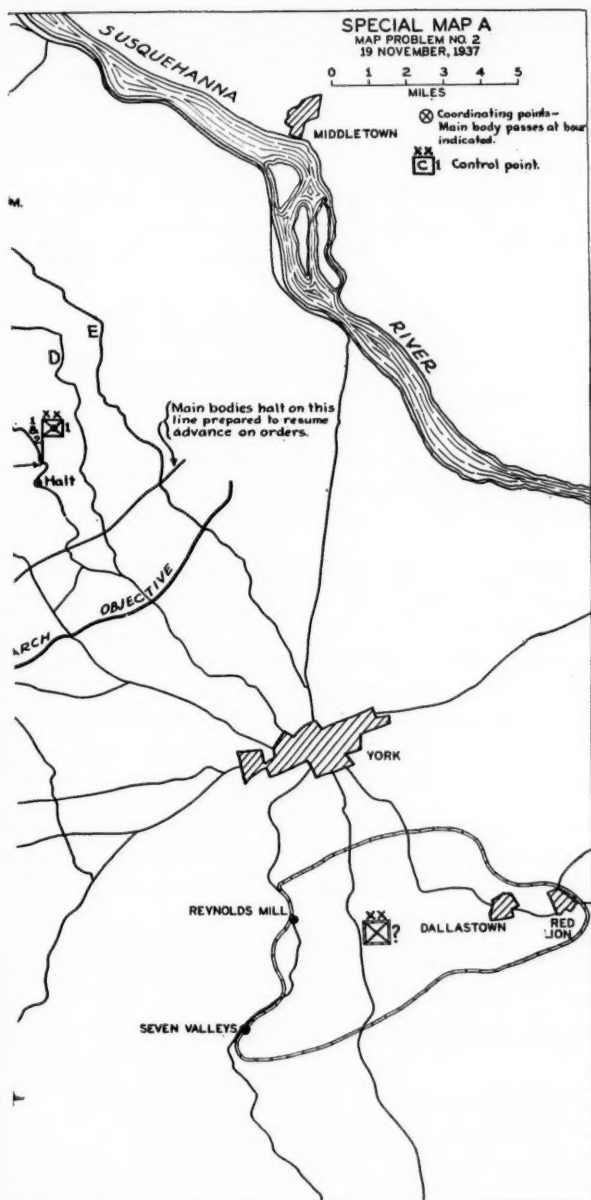
(2) *Own forces.*—The 1st Division is in concealed bivouac as shown on Special Map. All foot troops had arrived in bivouac by 1:30 AM after marching less than 8 miles.

The 901st Observation Squadron (Separate) is operating from the I Corps airdrome and a landing field near Mechanicsburg.

The 901st Cavalry Squadron, reinforced, from the vicinity of Elcock Schoolhouse (375-780) is reconnoitering to the general line: Bermudian Creek—Conewago Mountains. Patrols reconnoitering toward York have been prevented by the enemy from crossing Little Conewago Creek.

The anti-aircraft artillery with the division is disposed to protect the bivouac area.





Seventy-two (72) trucks from the 1st Quartermaster Regiment are attached to the reconnaissance detachments; no additional motor transport will become available for the movement of troops.

Supply is normal. All units are completely equipped. Field trains are with their organizations. Division rail-head and ammunition refilling point are at Mechanicsburg.

I Corps and GHQ are protecting the lines of communication from the Zone of the Interior to Mechanicsburg (exclusive).

e. Weather, roads, and streams.—The weather is fair and cool; forecast: no change. Roads are dry and in good condition. All streams shown on Special Map are fordable, except the Susquehanna River.

f. Decision of Major General A.—At 2:30 AM, 15 October Major General A decided to march * * *.

3. FIRST REQUIREMENT.—So much of the plan of Major General A at 2:30 AM, 15 October, as pertains to the following only:

- a.* March objective for the first stage of the march.
- b.* Number of columns.
- c.* Time of march.
- d.* Echelonment of columns, if any.
- e.* Strength and mission of any ground forces employed on security or reconnaissance missions for the division as a whole.

NOTE

The 1st Division has the normal reinforcements listed in paragraph 2, Table 1, *Tables of Organization*, 1937, except that the 901st Cavalry Squadron, reinforced, is substituted for the 1st Squadron 1st Cavalry.

SECTION II

Situation, continued, and Second Requirement

	Paragraph
Situation, continued	4
Second requirement	5

4. SITUATION, CONTINUED.—*Partial plan of Major General A at 2:30 AM, 15 October:*

a. To march toward the line: Davisburg (380-765)—Dover (385-770)—Zion View (390-775).

b. In five columns.

c. The advance guards of combat teams to cross Yellow Breeches Creek at 5:20 AM, 15 October.

d. The heads of the main bodies of the combat-team columns to cross Yellow Breeches Creek simultaneously. When the head of the main body of the right (west) column reaches the Franklintown (365-780)—Blair Hill saddle, it will be halted so as to resume the march echeloned about 2 miles to the right rear of the adjacent column. The march of the two left (east) columns will *not* be interrupted north of the Conewago Mountains for the purpose of maintaining exact formation. Motor column will be echeloned about one hour.

e. (1) The 901st Cavalry Squadron, reinforced. Mission: To seize without delay and hold Conewago Mountains until relieved by the reconnaissance detachments. When relieved to reconnoiter to the line: Hanover—York—Codus Creek, paying particular attention to the west half of the division zone of advance as far south as Pigeon Hills. Report promptly strength, composition, location and movements of hostile forces encountered. Continue liaison with 1st Cavalry Brigade.

(2) Reconnaissance Detachments No. 1 and No. 2, under the command of Lieutenant Colonel, 3d Battalion 2d Infantry. Mission: To move secretly without delay, relieve the 901st Cavalry Squadron along Conewago Mountains and hold Conewago Mountains. When the move has been completed, one-half of the trucks from the 1st Quartermaster Regiment to be returned to Bowmansdale (370-790).

5. SECOND REQUIREMENT.—So much of the plan of the division for the march as pertains to the following:

a. Route of march for each column.

b. Initial line or initial point selected for each column and the hour the head of the *main body* of each column will pass its initial point or initial line.

c. General composition of columns.

d. Measures to be employed for the control of the march after the heads of the columns have passed the initial points or initial line.

e. Security and reconnaissance measures for the protection of the flanks of the division (omit those already enumerated for the cavalry).

SECTION III

A Solution of Second Requirement

	Paragraph
A solution of second requirement	6

6. A SOLUTION OF SECOND REQUIREMENT.—*a. Requirements a, b, c, and d.*

b. Requirement e.—To have the 1st Brigade protect the left flank of the division.

To have the 2d Brigade protect the right flank of the division.

To have the 1st Tank Company follow the main body on Route B by bounds. To be prepared to assist in the protection of the right flank of the division.

To have the 1st AT Battalion (less one company) follow the advance guard on Route B.

To have the 901st Observation Squadron reconnoiter * * *. To pay particular attention to the discovery and prompt report of the location, strength, composition, and movements of mechanized or motorized forces on, or approaching, the right of the division. In addition to reports to the division, pertinent information to be reported promptly to the head of the main body on Route B.

SECTION IV

Discussion

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Purpose	7
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7. PURPOSE.—The purpose of this problem is to illustrate the tactics and technique of marching a reinforced

division under conditions requiring a daylight advance in the presence of an enemy, a portion of which possesses superior mobility.

8. MISSION.—The mission of the 1st Division requires an advance toward York at least to suitable terrain from which the artillery within the division can effectively interdict the railroads in York. This distance is about twenty miles, or about five miles in excess of a normal march. The mission also requires the division to protect the concentration of the remainder of the I Corps. These missions are consistent initially. Sometime during the advance the situation may change to such an extent that the division cannot accomplish all that the corps commander expects. By this time the corps commander will have arrived and if necessary can change the mission as required by the situation and the will of the commander. In the meantime the mission clearly requires an advance toward York.

9. TERRAIN.—The Susquehanna River to the east of the division zone of advance affords considerable protection to the left of the division by restricting the operation of large forces. Full advantage should be taken of this protection without being so close to the river as to be restricted thereby.

The northern extremity of South Mountain protects the flank of the division as it crosses Yellow Breeches Creek and approaches the heavily wooded hill masses on the general line: Franklinton—Lewisberry (385-785). These hill masses are strong terrain features which control the defile between South Mountain and the Susquehanna River. This area is the first of a succession of important terrain features to be secured by the division in its advance.

To the southwest of these hill masses, in the western half of the division zone of advance, the terrain is open with a succession of drainage and ridge lines generally perpendicular to the direction of advance.

Farther to the southeast, the center and east half of the division zone of advance are broken by a succession of ridges, valleys, and woods. Conewago Creek, although fordable, is an important obstacle as it is dominated by Conewago Mountains.

Conewago Mountains are the most outstanding terrain feature within the initial march capabilities of the division. They dominate the open gently rolling terrain to the south-

east and provide good close and distant observation to the front and both flanks. The east flank, resting on the Susquehanna River, is very strong. The west flank is not on very strong terrain but can be strengthened by proper defensive measures. The wooded slopes afford excellent cover and would greatly restrict the operation of mechanized vehicles. They are of appropriate size for a division to defend either from the north or the south.

Conewago Mountains form the first suitable terrain feature from which the 1st Division can protect the exit of the defile between the South Mountains and the Susquehanna River. They are an intermediate objective which must be secured prior to advancing farther toward York.

York is an important communication center about three marches north of Baltimore. It is served by two single and one double-track railroads from the Baltimore area. Its yards have a capacity of about 50 military trains. Its secure possession by Red would greatly facilitate the concentration of additional forces to operate against the advance of the Blue main forces. The most suitable terrain to protect York, from a Red viewpoint, is the Conewago Mountains.

The most suitable terrain northwest of York, from which the 1st Division could place effective artillery fire on York, is the ridge between Little Conewago Creek and Codorus Creek. This position is weak on the west flank unless that flank can be rested on Pigeon Hills or Conewago Mountains. In either case the front involved is too great for a protracted defense by one division against superior forces.

10. ENEMY CAPABILITIES.—The force southeast of York is probably a division. At 1:30 AM, it was just completing a march of about 14 miles. It may resume the march to the northwest at or shortly after daylight, 15 October, in which case the leading elements can, if unopposed, arrive on Conewago Mountains between 11:00 AM and 12 noon, in good physical condition. If it marches so as to arrive on Conewago Mountains much before that hour, the physical condition of the foot troops will be temporarily below that required for sustained combat.

The motorized force in Baltimore, moving without lights, could reach the hill masses between Franklintown

and Lewisberry, if unopposed, about 7:30 AM. By moving at once with lights its leading elements could reach the general line: Bermudian Creek—Conewago Creek about daylight, if unopposed. Such movement would probably be observed and promptly reported. This force can, by prompt movement, if unopposed, early interfere with the accomplishment of the mission of the 1st Division, especially if it operates in conjunction with the mechanized force reported in Westminster.

The mechanized force reported as being at Westminster at 10:00 PM, is capable of interfering with the march of the division by operations in close conjunction with other Red forces or by operating alone. These operations may materially influence the march of the division at any time after daylight. The most favorable terrain for attacks by this force is southeast of the Conewago Mountains and southwest of the general line: Blair Hill—Rossville (375-775)—Harmony Grove (380-770). The heavily wooded Conewago Mountains are not favorable for the employment of mechanized vehicles and are capable of defense with relative ease.

Air attacks may occur at any time during the march. Such attacks should be most effective while the columns are inadequately protected and are restricted in their ability to disperse quickly.

11. FIRST REQUIREMENT.—*a. March objective.* To prevent the enemy from detraining large forces at York, the 1st Division must either occupy York long enough to effect extensive demolitions or occupy the forward slopes of the ridge north of Codorus Creek from which artillery can interdict the railroads in York. In either case the division must advance at least 20 miles. To march this distance without resting (other than the short hourly halts) would place the division on weak terrain, too exhausted for sustained combat, within easy striking distance of at least an equal fresh force. To march this distance and still be physically capable of carrying on sustained combat would require 11 hours. This is 5 hours more than that required for a march of 15 miles. Many things can happen in 5 hours. If the division is to advance to the vicinity of York where combat is almost certain, a long rest halt should be made. The objective for the first stage should be within

the capabilities of the command, should favor future action including protection of the command while resting, and must provide protection for the corps concentration area within the division zone of advance.

Since Conewago Mountains are within the initial march capabilities of both Red and Blue, and its possession by the 1st Division is essential to the accomplishment of its mission, to fail to plan the march at least to this objective would be an unwarranted abandonment of the mission.

The future action of continuing the advance toward York would be facilitated by reaching the general line: Dover—Fox Run—Little Conewago Creek. Probable enemy capabilities and the lack of strong terrain on the west flank indicate the desirability of refusing that flank. The general line: Davisburg—Dover—Zion View, is selected as a suitable objective for the first stage of the march.

b. Number of columns.—The road net to the march objective permits the use of five columns. This is considered the greatest number that can be advantageously employed in this situation with due regard for the necessary control and readiness for battle in more than a single direction. The vulnerability of long columns to air attack, the difficulties of protecting same from mechanized attacks, and the need for rapidity of movement and deployment indicate the use of one route for each of the four combat teams. An additional route for the medium artillery permits the tractor elements to march sufficiently well forward to be promptly available.

c. Hour of marching.—In deciding the time or hour of marching the division commander is concerned with the hour that the *initial* moves from the bivouac or assembly areas are made.

The mission and enemy capabilities dictate that the march begin at the earliest practicable moment. At 2:30 AM, the troops are in bivouac. Daylight is at 5:20 AM. From two to three hours will be required at night for alerting the command, issuing orders, preparation of breakfast and a cooked lunch, and for other preparations for the march. Since the command will probably engage in combat during the day, careful consideration must be given to the physical condition of the foot troops upon arrival on the objective. Prior to 1:30 AM, they had completed marches up to 8

miles in length. The column having the longest uninterrupted march to the selected objective will cover approximately $14\frac{1}{2}$ miles. Adding the 8 miles previously covered, totals $22\frac{1}{2}$ miles since 9:30 PM. The remaining $14\frac{1}{2}$ miles will require 5 hours, 48 minutes. Adding the 4 hours already marched, totals 9 hours, 48 minutes. The time required to make a successful march of $22\frac{1}{2}$ miles is $13\frac{1}{2}$ hours. Therefore 3 hours, 42 minutes is the minimum resting time. (See Table 3 *Reference Data*, 1937.)

The march should begin not later than 5:30 AM. To march before 4:30 AM would fail to give proper consideration to the physical condition of the troops upon arrival on the objective.

d. Echelonment of columns.—The early arrival upon Conewago Mountains is very important. Enemy capabilities are such that he can interfere with the march. Every effort consistent with security must be made to prevent the York Reds from reaching Conewago Mountains in force prior to the arrival of the 1st Division. Echelonment of columns will delay the division's arrival. Therefore there should be no more echelonment than is necessary for security. The Susquehanna River so restricts maneuver to the east of the division, that echelonment of that flank is unnecessary and undesirable. South Mountain will restrict maneuver until the columns pass Franklinton. Therefore, enemy capabilities are such that prompt deployment of the right brigade to the right front may be necessary. Only the echelonment of the right column is necessary to facilitate this maneuver. The echelonment should be made after passing Franklinton so as not to delay the passing of the command through the defile between South Mountain and the Susquehanna River. For security, the motor column should be echeloned about one hour's march to rear of adjacent columns.

e. Security forces.—Since the mechanized Reds and the motorized force in Baltimore, if unopposed, can reach Conewago Mountains shortly after daylight, a strong effort should be made to prevent this action. The 901st Cavalry Squadron is the most available unit for this task and should be used at once for this purpose. In order to free the cavalry for its more suitable and important mission of reconnaissance, it should be relieved as soon as practicable.

Reconnaissance detachments are organized and should be sent at once to relieve the cavalry and hold Conewago Mountains. By moving without lights at 8 miles per hour they should be disposed along the southern exit of the passes at, or shortly after, daylight. As at least half of these troops will initially be required for holding missions, the motor transport not required should be returned for eventual use in reinforcing the reconnaissance detachments or other missions requiring such mobility.

The division cavalry when relieved should be used primarily on reconnaissance missions rather than combat missions. Since ground observation from Conewago Mountains covers the terrain toward York, the bulk of the cavalry should be used to reconnoiter the exposed flank of the division. Prompt reports of mechanized and motorized movements in the western half of the division zone of advance should be required. It should maintain liaison with the 1st Cavalry Brigade.

12. SECOND REQUIREMENT.—*a. Routes of march.*—The shortest suitable routes to the objective should be used. Due to the open terrain west of the line: Blair Hill—Harmony Grove, not over one route should be selected through this area. This route should follow close to the wooded areas in order that this column can seek cover from mechanized and aerial attacks.

Prominent highway intersections attract aerial observers and should be avoided unless there are compensating advantages to be gained in their use. For this reason Dillsburg and Newberrytown should be avoided.

The probable scheme of maneuver has an important effect on the routes selected. This is especially true as the division approaches such a decisive terrain feature as the Conewago Mountains. The restrictions on maneuver imposed by the Susquehanna River minimize the need for depth in the deployment of the left brigade. The terrain places no serious restrictions on the maneuverability of the right brigade. Therefore the routes selected for the left brigade through the Conewago Mountains should facilitate its deployment as far west as Mount Royal gap. This will permit the bulk of the right brigade to be retained for a mass of maneuver.

b. Control of the start.—In coordinating and controlling the march, the division commander is primarily concerned with the progress of the main bodies of the columns. He usually prescribes the time when the head of the main body of each combat team or column passes an easily located feature on each route. In this case Yellow Breeches Creek gives a line of such points and is used as an initial line to be crossed by the heads of the main bodies at the times designated. The time the main bodies pass the initial line in this case also controls the depth of the advance guards. The advance guards should precede the main bodies a sufficient distance to preserve to the commander his freedom of decision with reference to the employment of the main bodies and to make his dispositions without serious interference from the enemy. The advance guard should always be within supporting distance of the main body. The necessity for sufficient distance for a reconnaissance detachment following the advance guard of a column may be a controlling factor. In this situation, with reconnaissance detachments well to the front, the total depth of the marching security elements preceding the main bodies should be at least $2\frac{1}{2}$ and not over $3\frac{1}{2}$ miles. Translated into time, the heads of the main bodies should start at least one (1) hour and not over 1 hour and 25 minutes after the time announced for the march, that is, the time when the initial moves are made from the bivouac area.

c. General composition of columns.—The assignment of troops to routes should be by combat teams. Brigade combat teams are assigned adjacent exterior routes nearest their bivouac areas.

Troops of suitable characteristics should be attached to the motor column for its local security. If this column is echeloned well to the rear, engineers may be available for this purpose. If the need for early support by the howitzer regiment is foreseen, it may be preferable to attach sufficient infantry for security missions.

Engineers may be needed on all routes and should be so assigned.

The fast moving elements of the center (motor) column would probably be held in Mechanicsburg until near the completion of the march in order to decrease their vulnerability to air and mechanized attacks. In order to have the

tank company (light fast) readily available to assist in repelling a strong mechanized attack, this unit should march under division control in rear of the right brigade or well forward in the center column. It would move by bounds.

d. Control measures after the start.—(1) *Control points.*—It must be within the power of the division commander at all times to control the march in accordance with developments in the situation and fresh information received. Initial march orders alone will not accomplish this object. The commander must take the necessary steps to insure that such information of the progress of the march as he desires reaches him promptly. The division command post cannot function properly while constantly in motion; nor can the march always be controlled properly from a position many miles in rear. It is often necessary to advance a portion of the division command group to successive locations near the heads of the main bodies of the marching columns. These are called *control groups* and the locations from which they operate are called *control points*. The purpose of the control group is to assist in the prompt transmission of information to, and orders from, the division commander and otherwise assist him in the conduct of the march. If suitably located it also facilitates the prompt establishment of the division command post in forward locations when necessary. Good communications to the rear and the flanks are essential. Full advantage should be taken of commercial telephone systems. Field wire lines are laid from the division command post when necessary.

March control points should be selected so as to enable the commander to maintain close control over the marching columns as critical terrain is approached. As the main bodies approach and pass the hill masses on the line: Franklintown—Lewisberry, a control point should be selected in the vicinity of Monaghan PO (375-785). From Fortney PO (380-780) the approach to Conewago Mountains may be controlled. From the vicinity of Alpine (380-780) the passage of Conewago Mountains may be controlled.

(2) *Coordinating points.*—Undue restrictions on the progress of the main bodies are undesirable. However, measures must be taken to insure that the main bodies do not make contact in unfavorable dispositions or on unfavorable terrain. The possibilities of piecemeal action, south

of Conewago Mountains, by the premature advance of the main body of one or more columns should be avoided. This can be effected by ordering the main bodies to halt upon arriving at the southern exit to the passes through Conewago Mountain. The march is resumed on orders of the division commander when the desired formation is obtained.

e. Flank security measures.—(1) *East Flank.*—The Susquehanna River would so restrict the operations of large forces east of the division that the protection of that flank is relatively simple. It should be easily accomplished by the east brigade with means available to it.

(2) *West Flank.*—Enemy capabilities and the terrain are such that, after passing the vicinity of Franklinton, the west flank of the division may be subjected to strong attacks, either by mechanized or motorized forces or a combination of both. A small flank guard of foot elements marching on parallel routes would have insufficient mobility to intercept a highly mobile force. It may also have insufficient combat power to prevent its being overwhelmed without materially delaying the hostile attack. There is no single strong terrain feature, capable of being easily defended, which blocks the available avenues of approach at suitable distance to the flank. The right brigade has the means to protect itself against minor attacks by the use of its antitank guns and truck-drawn artillery. The terrain through which it marches adds to its security.

Adequate reconnaissance of the western portion of the zone of advance and information from the 1st Cavalry Brigade should disclose a major threat in time for provisions to be made to meet it. This would be facilitated by appropriate march positions of the more mobile antimechanized elements not required for other security missions.

The following are considered adequate *initial* provisions for the security of the west flank: (a) Close and distant reconnaissance by the division air service and the cavalry; (b) Selection of routes through the best available tank-secure terrain; (c) Directing the right brigade to protect the right flank of the division; (d) Marching the tank company and at least one company of the antitank battalion where they can promptly intervene when ordered. These latter units should march under division control with the

left column of the right brigade, the tank company following the main body by bounds.

If the enemy fully exploits his capabilities and attacks the flank of the division with all available mobile forces, the division would be forced to meet this attack along the general line of the flank column.

13. PASSIVE MEASURES FOR ANTI-AIRCRAFT DEFENSE.—*a.* Due to the lack of time, the matter of anti-aircraft defensive measures has been omitted from the requirements. It must not be assumed, however, from this omission that it is considered of little importance. Aviation is a weapon of great range and fire-power. It is capable of intervening quickly at great distance. The march of the 1st Division may be such a serious menace to Red plans and operations as to warrant the use of aviation to delay its progress. The 1st Division, therefore, should reduce its vulnerability to air attacks to the minimum consistent with the tactical requirements.

b. The vulnerability of troop movements to air attack is increased by:

- (1) Discovery of movement.
- (2) Complete surprise.
- (3) Long exposure to attack.
- (4) Density of mass at the time of attack.
- (5) Absence of adequate means of active defense.

c. In this daylight march the conditions favoring Red's discovery and probable attack of the division by air approach the maximum.

d. From the application of the above listed principles to this particular situation, we might draw these conclusions:

(1) Elements not immediately required during the march should remain concealed or dispersed as long as the tactical situation permits.

(2) Elements which must move should:

d. From a consideration of the conclusions listed in the opposite column, then balancing the air factor against other factors* not listed, we may determine upon action as shown by the following incomplete examples:

(1) Field and service trains (less detachments) remain concealed in present bivouac areas until . . . (dark) (further orders).

(a) Take advantage of every opportunity to avoid discovery.

(b) Present the most dispersed mass possible, consistent with other requirements.

(c) Reduce time-length of each exposure.

(3) A warning system to provide timely and accurate information of the approach of hostile aircraft is essential.

(a) Avoid conspicuous routes affording little cover. Halt under the best available cover. March along sides of road in shadows, etc.

(b) Foot troops in column of twos. Increased distances between vehicles, especially artillery and trains. Avoid defiles, or expedite the movement through them, crossing on as broad a front as practicable.

(c) Motor and other fast moving elements move by bounds. Long bounds by those not required—short bounds by those which will be needed early in combat.

(3) Employ all available personnel and facilities within the division and take advantage of commercial facilities and suitable civilian agencies to provide an adequate anti-aircraft warning system.

* Such as: increased length of main body may delay its entry into action; hostile mechanized forces may interfere with continuous movements in rear of main body; marching across country delays progress; decreasing distances between advance guards and main body to avoid delay in the progress of the mass of foot troops may subject same to effective artillery fire or lead to its premature employment not in accord with the will of the commander.

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El Caballo
Marina
Alas-Tiro y Gimnasia
Ayuda Mutua de Suboficiales

BELGIUM

L'Aviation Belge

BOLIVIA

Revista Militar

BRAZIL

Revista Militar Brasileira
O Tiro de Guerra
Revista do Club Militar
A Defesa Nacional
Cavalaria

CHILE

Memorial del Ejército
Revista de Marina
Revista del Servicio de Administración Militar
Revista de Infantería
Revista de Caballería
Revista de Artillería
Chile Aéreo

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COLOMBIA

Revista Militar del Ejército

CUBA

El Ejército Constitucional
Antiaérea

CZECHOSLOVAKIA

Vojenske-Technique-Zpravy

DOMINICAN REPUBLIC

Revista Militar

ECUADOR

Revista Militar

FRANCE

Revue des Troupes Coloniales
L'Aeronautique
La Revue des Deux Mondes

GERMANY

Reichsverband Deutscher Offiziere

GUATEMALA

Revista Militar

ITALY

Echi e Commenti
Nazione Militare

LITHUANIA

Musy Zinyas

MEXICO

Revista Naval Militar

NETHERLANDS

De Militaire Spectator

PARAGUAY

Revista del Ejército y de la Marina

PERÚ

Revista Militar
Revista de Marina
Boletín del Clase
Revista de la Sanidad Militar
Revista de la Escuela Militar de Chorrillos

RUMANIA

Revista Geniului
Revista Infanteriei
Romania Militara

SPAIN

Revista General de Marina
Memorial de Infantería
Revista Técnica de Intendencia Militar
Revista de Aeronáutica
Revista de Ingenieros del Ejército

SWEDEN

Krikventenskaps-Akademiens

SWITZERLAND

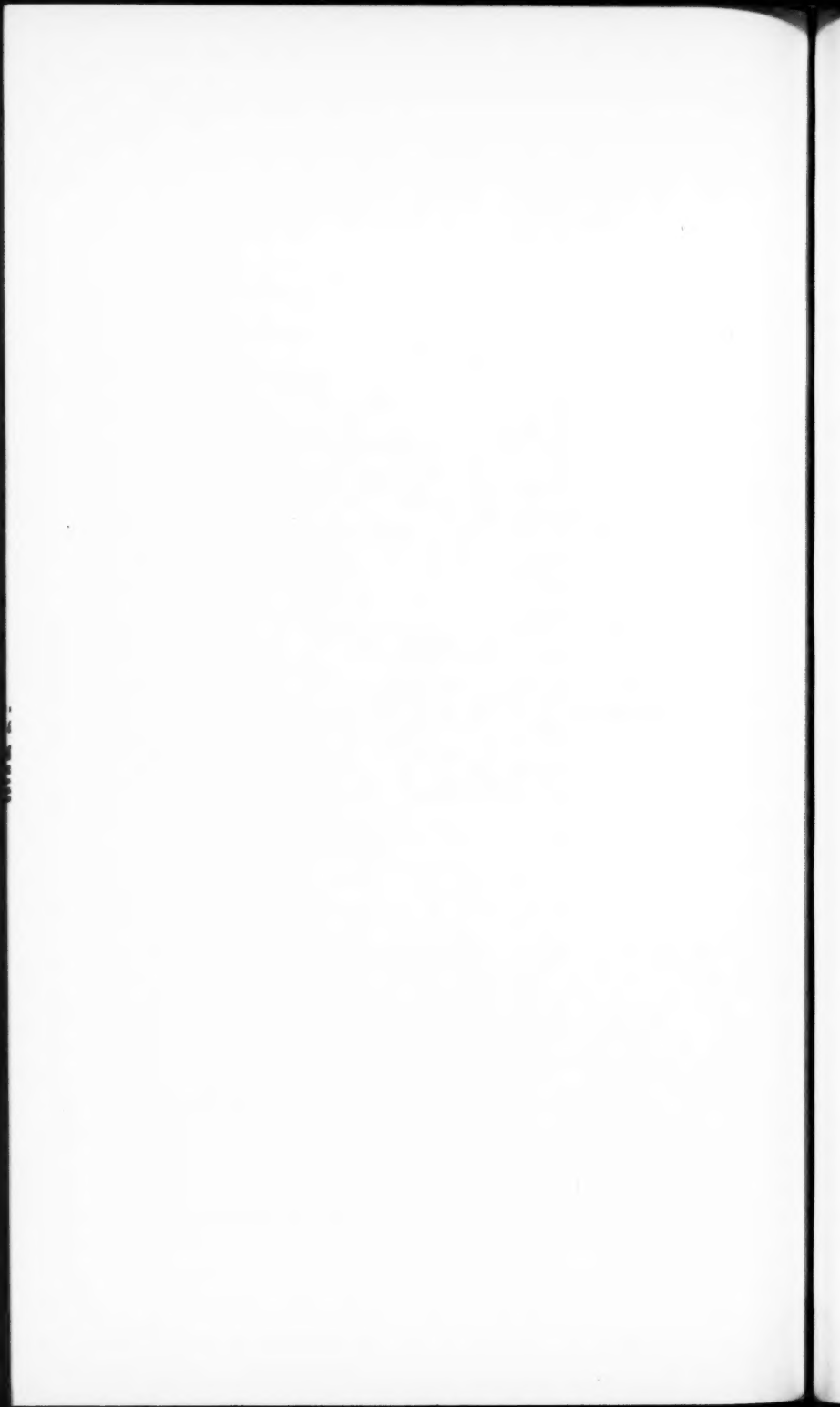
Schweizerische Monatschrift fuer Offiziere aller
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Allmeigne Schweirzenische

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Revista Militar y Naval

VENEZUELA

Revista del Ejército, Marina y Aeronáutica



CATALOG OF SELECTED PERIODICAL ARTICLES

This section catalogs the articles selected from Library periodicals for the current quarter. Periodicals in this Catalog are arranged alphabetically.

ARMY ORDNANCE

January-February 1938

LESSONS OF THE SPANISH WAR. AN ESTIMATE OF THE MILITARY FACTORS: MEN AND MATÉRIEL. Captain Liddell Hart

PREPAREDNESS IN ENGLAND. A STUDY OF INDUSTRIAL MOBILIZATION. (II) Major Codd

ORDNANCE IN THE NEW DIVISION. A DISCUSSION OF THE PROPOSED ORGANIZATION OF FUNCTIONS. Lieut.Colonel Marsh

EMERGENCY CONSTRUCTION. PROCUREMENT PLANNING FOR THE BUILDING INDUSTRY. Captain Winslow

ORDNANCE SERVICE IN THE CORPS. Part II. Lieut.Colonel Marsh

ARMY QUARTERLY (Great Britain)

January 1938

SOME ASPECTS OF THE CIVIL WAR IN SPAIN

THE BRITISH ATTACK FROM MONCHY-LE PREUX ON THE 14TH OF APRIL, 1917 AND A COMMENTARY. Captain Wynne

THE GENERAL RESERVE IN THE ATTACK IN OPEN WARFARE. Lieut. Colonel Burne

DEFENCE OR ATTACK? Major-General Rowan-Robinson

MAN AND MECHANICS. TRAINING A SOLDIER. Lieut.Colonel Seton Hutchison

BULLETIN BELGE DES SCIENCES MILITAIRES (Belgium)

By Captain Wendell G. Johnson, Infantry

July 1937

DEFENSE OF CANALS ON LEVEL GROUND.

[A propos de la défense des canaux en site plat.] Colonel Bouha

The advantages which a canal — of which Belgium has many — provides in front of a position are many. It prevents surprise attacks. Hostile attack preparations cannot be made unobserved. The progress of the attack is retarded by having to cross the obstacle. Having crossed the canal, the attackers must fight with an obstacle behind them. Recruits and reservists are more confident and fight with better morale when protected by a substantial barrier.

But there are disadvantages, too, in the defense of such a position. The outline of the position is plainly marked for the enemy: it appears on

all maps, is rectilinear. The defenders can easily be located, neutralized, destroyed; therefore, as soon as the enemy can concentrate his artillery, only the minimum of troops should be near the canal. A canal in flat country means there will be dikes. As a result the dike on the enemy side of the canal creates a large dead space for the flat trajectory weapons of the defense. Of course the curved-trajectory weapons will be employed in depth, but they can only be fired upon unseen objectives and accordingly are seriously handicapped.

From these facts it is apparent that beyond the canal the fires will be fragmentary, intermittent, and slow in delivery. On the canal proper the fires will be continuous but lacking in depth, and weapons directly on the canal will be extremely vulnerable owing to their exposed position. For these reasons the habitual protective fires — continuous, dense, and deep — must be organized on this side of the canal.

Withdrawing to some 500 yards this side of the canal, the full effect of infantry fires is assured; ample security from friendly artillery fires upon the canal is obtained; and enemy fires directed at the defenders of the canal will not reach the main defensive position.

Of course, this security obtained by withdrawing from the canal also favors the enemy, for he can extend his artillery fires and place them on our position without endangering his own troops during their passage of the canal.

In all cases, however, it must be borne in mind that when we put the front of our position back from the canal, the attacker will lengthen his fires to create a closed area for the infantry combat that will develop at the canal proper. We must endeavor not to get caught right in the middle of these fires.

The author makes further observations on the defense of a canal during the several phases of a hostile attack, and then presents a concrete case with its solution.

PRACTICAL NOTES ON MILITARY HYGIENE.

[Notes pratiques d'hygiène militaire.] Captain Fanuel

TROOP HYGIENE IN THE FIELD.

[Hygiène des troupes en campagne.] Captain Dupont

THE HIGHWAY PROBLEM IN BELGIUM IN CONNECTION WITH NATIONAL DEFENSE.

[Le problème routier en Belgique et la défense nationale.] Lieutenant Cumont

A discussion of the peacetime and wartime considerations which should limit the construction of super highways in Belgium.

THE REORGANIZATION OF THE DANISH ARMY.

[La réorganisation de l'armée danoise.]

The principal changes in the Danish Army voted by Parliament on 4 February 1937, are:

The cavalry, termed "covering troops," retains its two regiments organized into:

- 8 cavalry troops
- 6 cyclist troops
- 2 armored-car troops
- 2 antitank troops, armed with 20-mm cannons.

The infantry continues to have eight regiments of which one becomes a two-battalion cyclist regiment. An infantry engineer unit of 500 men will

be organized later, with station in the south of Jutland. Its mission will be to prepare obstructions and demolitions. All told there will be no more than 32 infantry battalions. The annual contingent for infantry (including the Guard) is 4,805 men (28 percent of total), or 1,085 men more than formerly.

The regiment has three battalions, each of five companies; a headquarters company; and a cannon company of eight 37-mm guns. The battalion has three rifle companies, a machine-gun company, and a cannon company comprising six minenwerfers and four 20-mm antitank guns. The cyclist regiment contains two battalions, each of four 150-men companies. Each company has 16 light automatic weapons.

The artillery is to have two of its horse-drawn groups become motorized. All told there will be: three field artillery regiments having two motorized and two horse-drawn groups (later, three groups will be motorized and heavy). Antiaircraft artillery consists of a regiment of three groups, each of three batteries; total, 36 cannons.

There are two engineer sapper battalions, each of three companies; and one signal battalion.

There are two aviation groups, totalling four squadrons of 12 to 18 modern planes each.

THE HUNGARIAN ARMY.

[L'armée hongroise.]

The Hungarian Army, whose organization is being completed, will have seven mixed brigades. Each brigade will consist of two infantry regiments, a cyclist battalion, an artillery regiment, a cavalry troop, a motorized signal company, and a motorized transport unit.

The infantry regiment will have a headquarters company, an engineer company, signal troops, a minenwerfer platoon, and three battalions of four companies — one, a machine-gun company.

The cyclist battalion will consist of a minenwerfer platoon, a signal platoon, two rifle companies, and one machine-gun company.

The artillery regiment will comprise three groups of three batteries. Provisionally it will only consist of one group having a signal platoon, a field artillery battery of 80-mm guns, a mountain battery of 75's, a battery of heavy 100-mm howitzers, and a battery of heavy minenwerfers.

Besides the mixed brigades the army will have seven regiments of frontier guards, each comprising three or four battalions.

The cavalry strength consists of two brigades, each of two regiments, an artillery group, and an engineer cyclist troop.

The principal special troops are: a motorized rifle battalion, a tank group, a group of motorized heavy artillery, two antiaircraft artillery groups, a special engineer battalion (bridging, etc.).

There are two aviation regiments.

THE CZECHOSLOVAKIAN ARMY

[L'armée tchécoslovaque.]

With but a population of 15 million, Czechoslovakia manages to maintain a standing army of some 210,000 men. With reserves capable of reaching three million, pre-military education of its youth, and numerous military societies, it may be said that Czechoslovakia is a nation wholly under arms.

Almost 2,000 airplanes can be mobilized.

Of the 180,000 recruits incorporated in 1936, 55 percent or 95,000 men were Czechs; 22 percent or 44,000 men, south Germans; 14 percent or 25,000 men, Slovenes; 5½ percent, Poles, Ukrainians and other minorities. In 1935, the army numbered 9,517 officers, mostly Czechs.

THE GERMAN FRONTIER FORTIFICATIONS.

[Les fortifications élevées par l'Allemagne sur ses frontières.] General Niessel

A summary of Germany's recently completed frontier fortifications.

CREATION OF GERMAN NATIONAL SOCIALIST AVIATION SOCIETY.

[Création du corps d'aviation national-socialiste.]

Similar to its national-socialist automobile society, Germany now has an aviation society under the control of the minister of aviation.

CLOSE AERIAL RECONNAISSANCE.

[La reconnaissance rapprochée.] Lieut.Colonel von Harbou

STUDY ON THE CALIBER OF ANTI-AIRCRAFT ARTILLERY.

[Etude sur le calibre de l'artillerie antiaérienne.] Captain Piacquadio

FRANCE: DRAGON PORTEE.

[France: Les dragons portés.]

The dragon porte group now comprises a staff and headquarters platoon, three rifle troops, and a troop of machine guns and infantry cannons.

The rifle troop will consist of a headquarters section and four platoons. Each platoon will comprise three combat groups and a headquarters group. The combat group will have a light automatic and a rifle team.

Altogether the troop will be provided with 30 passenger vehicles and 8 to 10 motorcycles.

The weapons troop will comprise four machine-gun platoons (total, 16 pieces), a platoon of two 37-mm guns, and two minenwerfers. This troop also will have 30 automobiles and 8 to 10 motorcycles. A large part of the dragon porté units are still equipped with trucks but the acquisition of cross-country vehicles is progressing regularly.

FRANCE: THE HEAVY-ARMORED CAR "BERLIET P.C."

[France: L'auto blindée lourde "Berliet P.C."]

This vehicle is mounted on a chassis with six driving wheels and has both forward and rear steering installations. Armament, one cannon and one machine gun; antiaircraft fire is provided for; crew, five men; armor, .35 inch; motor, 80 horsepower; speed, 37 miles per hour; radius of action, 250 miles; weight, 8 tons; length, 16½ feet; width, 7 feet; height, 6½ feet; observation by periscopes.

FRANCE: THE "BERLIET U.M." ARMORED CAR.

[France: L'auto blindée "Berliet type U.M."]

This vehicle is constructed particularly for cross-country movement. Besides the four regular wheels there are two reserve wheels amidships.

Motor, 76 horsepower; road speed, 47 miles per hour; radius of action, 185 miles; armament, two dual machine guns in turret (one a large caliber for antitank defense); four-man crew; weight, 7 tons; armor, .35 inch; length, 16 feet; width, 7¼ feet; height, 6½ feet; observation by periscope.

U.S.S.R.: "BRONIEFORDY" RECONNOITERING MACHINE-GUN CARRIER.

[U.S.S.R.: L'auto-mitrailleuse de reconnaissance "Broniefordy."]

This armored vehicle is mounted on a Ford chassis. Its armament consists of a machine gun in the turret and an automatic pistol forward. Crew, 2 men; length, 12 feet; width, 5½ feet; height, 6 feet; armor, .35 inch; weight, 3.2 tons; radius of action, 175 miles; speed, 45 miles per hour.

NAVAL DEFENSE OF THE BRITISH EMPIRE.

[La défense navale de l'empire britannique.]

On 1 September 1936, the British navy consisted of:

Ships of the line.....	15
Airplane carriers.....	8
Heavy cruisers.....	19
Light cruisers.....	33
Destroyers.....	167
Submarines.....	53
Total.....	295

Not all of these, however, were in service on the above date.

In 1937 the fleet was to have 217 airplanes.

There are 5,800 officers and 83,211 men in the navy; 9,689 of them in the marine corps. At the end of March 1937, the total strength reached 101,158 men. Service is voluntary.

THE CHEMICAL ARM IN THE TACTICAL DOMAIN.

[L'arme chimique dans le domaine tactique.] General Zanghieri

The author concludes his study as follows:

(1) The use of masks as a passive antigas protection should be reduced to the minimum for they create a tactical obstacle.

(2) The principle of mass, requiring tremendous amounts of material for the chemical arm, can be realized more readily by using air bombs.

(3) Surprise retains all its importance: materially, and especially, morally.

(4) The artillery is not the ideal means for launching gas; its output is too weak.

(5) On troops that readily use masks when needed, concentrations of gas launched by ground means seldom produce the desired effects.

(6) Tactically, the chemical arm is different from other arms. Its immediate deadly effects (except in air bombardments) are generally weak. Its effectiveness is noticeable indirectly:

(a) In partly immobilizing troops which take protective measures.

(b) In completely neutralizing troops that do not take protective measures.

(c) In forcing units frequently to forsake cover — to clear an infected area — and to come under the adversary's fire.

(7) The chemical arm is confirmed, especially in the offensive, as an auxiliary arm of infantry in the close combat zone and where firearms cannot produce results.

(8) In the defense against gas, protective means should only be used when actually needed. For this reason officers must have a practical knowledge of chemical means.

(9) The infected combatant seldom is mortally injured but is obliged to undergo long convalescence which keeps him out of action for several months.

(10) Chemical means are not tied to fixed trajectories like firearms and therein lies both their strength and their weakness.

August 1937

ARTILLERY VERSUS TANKS.

[L'Artillerie contre les chars de combat.] Major Pottier

This article is divided into four parts: The characteristics of tanks in current use; the action of artillery and its own defense against a mass attack of tanks when the army occupies a defensive position; the defense of artillery in mobile warfare; conclusions.

Though maximum tank speeds run as high as 60 miles per hour, tests have shown that in battle the average speed will be nearer 6 miles per hour and will not exceed 10 miles per hour. Armor thickness varies from .35 inch to 1.4 inches, the average being .8 inch. The average vulnerable surface is: in length, 10 to 13 feet; in width, $6\frac{1}{2}$ feet; in height, $6\frac{1}{2}$ feet.

Tanks assemble during the night at 5 to 7 miles from the enemy front line preparatory to a daylight attack. Attacks are made in successive waves: The first one penetrating directly to the artillery positions; the second one attacking the antitank positions which are disclosed during the passage of the first wave; the third, accompanied by infantry, directly attacks the opposing infantry; the fourth, finally, strikes the centers of resistance. The density of attack will vary from 50 to 100 tanks to the kilometer (1,100 yards); that is, 15 to 25 tanks in each wave on a kilometer of front.

The ensemble is accompanied, naturally, by artillery fire on all the known antitank guns and on all the located batteries of artillery, the latter being attacked at the same time by aerial bombing. Many of these fires will be made by toxic shells in order to force operating personnel to use masks and thereby diminish precision of fire.

If the assembly area of the tanks can be ascertained and if it lies within the range of artillery, a powerful concentration may cause the enemy considerable losses and even break up the impending attack.

Once the tanks are en route to their assault positions, artillery fire is useless.

After the first wave begins its attack, an artillery barrage will do little damage, for, at best, the small number of shells striking within a given area during the brief period required for tanks to traverse it can be expected to do no more than realize a chance hit. There will be but three or four tanks of one wave traversing the 150 to 200-yard width of a battery barrage. [The author calculates the chances mathematically.] Of course, tanks may lose direction in the cloud caused by detonations and accompanying infantry may suffer heavy losses, but care should be taken not to overestimate the potential losses to tanks.

On 15 June 1918, at Coeuvres-Voltery, 25 tanks had to cross a bridge under a violent bombardment of heavy artillery. The fire had been registered on the bridge. Only one single tank was struck by a 240-mm shell; it was blown 10 yards out into the stream.

From this it can be concluded that during the assault defending infantry should count principally on its own antitank arms.

The tanks that have escaped these antitank guns then penetrate the position. Is it feasible to lay down an antitank barrage within the position? Such a procedure might completely disrupt the morale of the friendly infantry and create a panic — the worst of catastrophies.

The tanks will maneuver under the fire of the antitank guns until they reach the crest which covers the supporting artillery positions, and here the problem takes on a double aspect for the artillery. Two missions demand attention at the same time: the concentrations which may be called for against the hostile infantry and the fight with the tanks that are attacking the artillery position.

Undoubtedly, the fight with the tanks is of primary importance, for the artillery which continues its support mission will be wiped out five minutes after the appearance of the tanks and the latter could then continue their ravages with impunity.

What should be the antitank procedure?

Considering the 105-mm gun, the defense of a battery should be organized by fixing on the terrain certain landmarks, known to all gun commanders,

at a distance of 500 to 700 yards. It must be remembered that antitank firing is the problem of individual guns and not of the battery. The trajectory being relatively flat up to 700 yards, only the direction of fire need be considered. Shorts rather than overs are preferable, for shorts will give useful ricochets. Firing should not be begun too early.

How many shells can one gun fire during the attack of, say, four tanks against the battery?

To cross 500 yards, a tank requires three minutes (assuming 6 miles per hour average speed). During that time one piece can fire a maximum of 18 rounds, easily 12 rounds. Is that enough?

One shell is enough to knock out any tank, however thick its armor may be — within the armor thickness currently used.

On 18 July 1918, in the sector of the American 1st Division, 20 Saint-Chamond tanks readily pierced the enemy front and, operating on good terrain at about 5 miles per hour, attacked the artillery positions. Fifteen tanks out of the twenty were lost in several minutes, eight of them knocked out by a single battery!

If the attack comes in the interval between two batteries or against the flank of one of the outer batteries of a group, the problem is more difficult. There will be no time to change front. The flank gun alone might be moved around so as to direct its fire laterally upon the machines confronting it.

Hits on targets moving laterally across the front of a gun are difficult to make. Therefore it must be recognized that artillery is impotent to defend itself by its own means against tanks appearing on its flank.

What, then, are the means for aiding this defense? First, the selection of positions; second, a passive antitank defense; third, an allotment of antitank guns.

The artillery positions must permit accomplishment of the normal missions, be defiladed from ground observation, and, if possible from aerial observation. To these three conditions must now be added a fourth — the positions must be located where lateral tank attacks cannot be made. Natural obstacles that can protect an artillery unit from lateral attacks are: sunken roads, water courses, canals, villages, woods, marshes.

Passive antitank defense measures comprise antitank ditches and mine fields. Ditches are impracticable for the artillery to construct for men cannot be spared to perform the labor needed.

Mines should be placed in front of batteries, in the intervals between them, and on the flanks of artillery groups, so that tanks will have to maneuver in search for the easiest passage — which should be to the front of the batteries where the most effective fire can be put on the tanks.

The mines used weigh about 11 pounds and contain about 8½ pounds of explosives, which is sufficient to destroy any track and immobilize a tank. These mines are placed by fives, in three rows two yards apart. A thousand mines weighing five tons can block about 750 yards.

The laying and camouflaging requires 125 men for three hours. The artillery has neither the specialists nor the means of transport needed.

Consequently the mine fields should be a part of the whole plan of defense of the higher commander and should be prepared either by engineers or special troops.

An allotment of small-caliber antitank guns appears to be the most logical solution. Each artillery group should be provided with a platoon of antitank guns. The disadvantages of this solution are the introduction of a special weapon in the group, of a new specialization, and the risk of uselessness during long periods — even for the duration of the war — of a costly weapon in units not attacked by tanks.

Happily, constant progress is being realized and there now exists a 40-mm cannon for dual purposes: antitank and antiaircraft against low-flying planes. It seems that antiaircraft machine guns should be replaced by a platoon of antitank-antiaircraft cannons within each artillery group.

In mobile warfare artillery is now without defensive means. Its defense should be assured by the antitank weapons of infantry units, pursuant to a general plan established by the high command.

CONCLUSIONS

1. Uncertain results of fires upon assembly area of tanks, this place often being selected out of range of most artillery pieces.
2. Inconsequential results of antitank barrage fires after launching of attack.
3. Manifest superiority of artillery in direct frontal fire on tanks.
4. Need for allotting antitank arms to artillery to meet flank or rear attacks.

The author concludes his article with an excerpt from the observations of an English correspondent on tank operations in Spain. The German 37-mm guns, as well as antitank machine guns and rifles, perforated the armor on the Russian tanks of late model. On 29 October 1936, to the west of Madrid, 40 Russian tanks were launched. Three-fourths of them were immobilized by antitank cannons. Russian, Italian, and German tanks suffered the same fate.

When the tanks approach, the defenders take cover in the ground and are not seen.

The war in Spain has shown that the tank — heavy, medium, or light — used against trained troops, must be supported by a strong infantry and a powerful artillery.

STUDY OF AN EXAMPLE IN USING MOTORIZED AND "CARRIED" TROOPS.

[Etude d'un cas d'emploi de troupes motorisées et portées.]

THE LAW OF NATIONS AND WAR.

[Le Droit des Gens et la Guerre.] (I) Colonel Voncken

A treatise on international laws.

MOTORIZATION IN VARIOUS COUNTRIES — THE GERMAN ARMORED DIVISION.

[La motorisation dans divers pays.] Captain Feenstra, Dutch Army

The three armored divisions now constituting a part of Germany's army each have the following composition:

(1) A reconnaissance detachment of sufficient strength to act as an advance guard, and to maintain contact. It has: 1 squadron of 12 airplanes; 24 armored cars; 18 tanks; 1 motorcycle battalion of 3 companies, each having 90 motorcycles [probably 60, as stated in the German "Der Truppendienst"]; 1 motorized artillery battery; 1 light munition train.

(2) Three infantry regiments, each of: 3 battalions; 1 company of 8 mortars; 1 infantry-artillery battery of 6 pieces; 1 light munition train.

(3) One battalion [brigade] of 50 [500] light tanks.

(4) One artillery regiment of four groups (total, 12 batteries), these groups being: 1 group portee; 1 group motor-drawn; 1 group on self-propelled mounts; 1 group (heavy artillery) motor-drawn.

Half of the transport of the motorized division consists of cross-country vehicles. The other half consists of vehicles capable of operating over most terrain.

The infantry company (motor carried) has 6 cross-country vehicles among its total of 17. Machine-gun companies are provided entirely with cross-country vehicles.

The complete transport of the division adds up to 2,105 cars, 793 passenger cars, and 390 motorcycles. Formed in a single marching column, the entire division would have a length of about 62 miles.

According to the German doctrine, the missions of these divisions should be principally deep and distant incursions, and actions on the flanks or,

after a successful breakthrough, on the front. Their object should not be to attempt a decisive action but rather to make local attacks. For the defensive, the use of these large units is not justified, although they can be advantageously used in retrograde actions.

[The composition of the German armored brigade announced by the Czechoslovak "Vojenski Rozhledy," January 1937, differs from the above. These are the elements it names: 1 brigade of tanks (2 regiments of 2 groups of 4 companies), 1 motorized brigade (1 regiment of 2 battalions and 1 motorcycle battalion), 1 antitank group of 3 companies totaling 27 37-mm guns, 1 motorized reconnaissance group, 1 motorized artillery regiment of 100-mm howitzers, 1 signal battalion of 2 companies, seemingly 1 motorized engineer company, 1 squadron of 9 airplanes, 1 antiaircraft group of 20-mm guns, services.]

[One brigade of tanks rather than one battalion would appear correct: it agrees with the "Revue des Troupes Coloniales" (France) which says there are 500 tanks in the armored division; it also agrees with an article in "La Science et la Vie," September 1936, reporting two tank regiments. This article further advises that the tank regiment has 3 battalions of 3 companies, the companies having three 5-tank platoons of 8-10 ton machines and one platoon of 1.8-ton machines.]

ORGANIZATION OF THE GERMAN ARMY.

[Organisation de l'armée allemande.]

During the past three years the German government by various decrees and orders has officially reestablished the military power of the Third Reich, and prescribed the organization of its new army.

Compulsory service for two years gives the land army a strength of 800,000 men.

The present organization comprises 36 infantry divisions, 3 armored divisions, 1 independent cavalry brigade and 1 mountain brigade.

In each infantry division there are: 3 infantry regiments of 3 battalions; 2 light artillery regiments, one of which is partly motorized; 1 engineer battalion; 1 signal detachment; 1 antitank battalion. [Also one reconnaissance group comprising either: (1) cavalry troop, cyclist company, machine-gun platoon, armored-car platoon, antitank gun platoon; or (2) 2 motorcycle companies, 1 armored-car company, 1 motorized machine-gun platoon, mines and antitank guns. —"Vojenski Rozhledy," January 1937.]

Each of the armored divisions (three actually formed) will contain 500 combat tanks.

In all, the military strength of the German land forces adds up to: 110 infantry regiments, 3 motorized regiments; 10 motorized machine-gun battalions; 3 motorcycle battalions; 63 field artillery regiments; 50 engineer battalions; 14 cavalry regiments; 2,000 tanks — approximate.

The infantry armament varies from the Mauser rifle to towed antitank cannons.

The artillery uses 77-mm and 105-mm field pieces, and 150-mm howitzers and guns.

THE RUMANIAN ARMY.

[L'armée roumaine.]

The Rumanian Army, including obligatory pre-regimental service, counts a total of about 225,000 men, of which 31,000 are gendarmerie and frontier guards. The mobilizable strength is at least 1,600,000 men.

The Army comprises a Guard division, 7 army corps containing 21 infantry divisions, a corps of Chasseurs having 2 mountain divisions, 4 cavalry divisions, and one corps of gendarmerie and frontier guards.

The peace-time effectives consist of 228 infantry battalions (including Guards and Chasseurs), 116 troops of cavalry, 311 light artillery batteries, 42 heavy batteries, 16 antiaircraft batteries, 70 engineer companies, 27 signal companies, 4 regiments of tanks, and one antigas company.

The armament, in peace time, consists of 2,000 heavy machine guns, 5,000 light machine guns, 1,811 light cannons, and 168 heavy cannons.

Infantry uses the light machine gun "Z.B. 30" type "Brunner," of Czechoslovakian manufacture.

The artillery can now equip itself from the national arms factory "Reschitz."

Motorization has not yet been achieved.

The air forces are organized in two air divisions having four land squadrons and one naval squadron. The division have a total of 800 planes besides the 62 ships in the hydroplane brigade.

The Rumanian Navy is not important. It consists of four torpedo boats and a 650-ton submarine. Seven monitors and seven auxiliary vessels are in service on the Danube. Total naval tonnage, not over 10,000 tons.

THE SYSTEM OF FRENCH FORTIFICATIONS.

[Le système des fortifications françaises.]

This article is a comprehensive brief of a German article describing French fortifications along its 1,500 kilometer eastern frontier.

The object of the frontier fortifications is to cover mobilization and to delay invasion.

Frontier troops are elite units, and number about 275,000 men, of which about 175,000 are on the Maginot Line.

THE NEW DEVELOPMENT OF FOREIGN AUTOMATIC WEAPONS — CALIBER 0.50 MACHINE GUNS.

[Le nouveau développement des armes automatiques à l'étranger.]

Engineer Narath

Machine guns in the caliber 0.50 range currently found in many armies are used primarily against armored combat vehicles and low flying airplanes. [Their use as an antitank weapon, however, is diminishing, owing to the need for a heavier weapon capable of penetrating thicker armor plate. The average caliber 0.50 can penetrate but a little over one-half inch of armor at normal impact (90 degrees to surface) at ranges up to 500 yards, and therefore is suitable only against lightly armored vehicles such as armored cars and tankettes.]

The principal data on these guns are tabulated below:

EXTRA HEAVY MACHINE GUNS

MAKE	CALIBER (IN.)	M.V. (F/S)	RANGE		RATE OF FIRE PER MINUTE	WEIGHT (LBS.)	PRO- JEC- TILE WEIGHT (OZ.)
			HORIZ. (YDS.)	VERT. (YDS.)			
Fiat.....	473	2945	-----	-----	-----	484	1.4
Fiat.....	492	3080	-----	-----	-----	264	1.4
Vickers.....	500	3000	7000	5470(?)	450	615	1.58
Browning.....	500	2620	9000	2190	600	363	1.83
Browning.....	520	2620	9850	2190	-----	363	1.83
Hotchkiss.....	520	2620	7650	3280	250	286	1.76
Scotti.....	520	2780	-----	-----	400	-----	1.83
Ernesto Breda.....	550	3280	5470	4380(?)	200	220	2.11

THE CAVALRY PLATOON OF THE GERMAN INFANTRY REGIMENT.

[Le peloton de cavalerie du régiment d'infanterie allemand.]

The German infantry regiment has a cavalry platoon of 31 horses and 32 men organized as follows: a headquarters group of five men, three combat groups of eight men each, a combat vehicle (three men, one on a bicycle).

The mission of this platoon is to make reconnaissances and to provide march security for the regiment.

The first of these missions is accomplished by patrols sent forward as far as division reconnaissance elements; the second, by patrols which march ahead of the point. The latter mission is carried out by echelon, from one crossroad to the next, the cavalymen waiting on the crossroads to be joined by the infantrymen.

The cavalymen are armed only with the carbine.

The personnel of the cavalry platoon may also be employed to fulfil messenger duties within the regiment.

HEAVY MOTORIZED BATTERIES.

[Les batteries lourdes motorisées.] Major Kruse

The German Army, like most other modern armies, has heavy motorized batteries.

Each battery, according to the author, usually has available: 4 cross-country passenger cars; 1 light passenger car; 3 motorcycles with side cars; 4 solo motorcycles; 1 reconnaissance car; 1 light, signal vehicle; 3 small, signal vehicles; 5 medium cross-country tractors.

In practice these vehicles are used as follows:

The first passenger car is for the battery commander. The second is for the observation officer and under-officer carrying the scissors telescope. The third transports the data-preparing group of the battery.

The first and second motorcycles accompany the battery commander.

There are two signal echelons: the first one, with the reconnaissance party, has the reconnaissance car, a telephone vehicle and a radio vehicle; the second echelon, with the combat elements, has the light signal vehicle and a radio vehicle.

The combat echelon contains: the fourth cross-country car and the third motorcycle for the battery officer; a light passenger car for the first chief of section; a tractor for each of the four pieces and one in reserve; the second motorcycle with side car for the adjutant and the third for the convoy under-officer; the fourth solo motorcycle goes with the adjutant.

The advantage of motorized batteries lies especially in their strategic mobility. When occupying positions, they seem less mobile than horse-drawn batteries.

FIRE AND MOVEMENT IN TANK ATTACK.

[Le feu et le mouvement dans une attaque par chars de combat.]

Lieutenant Kauffmann

Every attack is a combination of fire and movement; the two are complementary to each other.

But can fire from a bucking, pitching, rolling tank really be considered effective if gauged by the standards of position fire? It is doubtful. For, however little rough the ground is, it violently disturbs laying and precludes fire adjustment during movement, thereby reducing the percentage of hits to a small figure.

Yet when stationary, a tank is able to fire far better than a machine gun which has been hastily set up.

On the other hand, a tank towers five feet above the ground instead of one, which, from the viewpoint of its security, is a big handicap even while cruising, and downright hazardous exposure when halted.

Tanks therefore should imitate infantry and attack by combining movement with fire at a halt. But, contrary to infantry procedure which is to occupy successive positions for several minutes — or hours — the tanks, for safety, should limit their stops to seconds.

Ten seconds should be the maximum. This corresponds, if running speed averages 10 miles per hour, to a move of 49 yards. During these 10-second halts several long bursts of fire can be delivered, say, at an antitank gun.

The halts may be: (1) in "chassis defilade" behind a crest (with the turret and its gun peeping over); (2) screened from view by a hedge, thicket, or grove; (3) in the open with no cover (and risking antitank fire).

Stationary, effective firing is possible up to 600 yards with an expectation of 30 percent hits — enough to neutralize the fire of an antitank gun.

Halting momentarily also aids a tank to elude the fire of antitank guns, for they engage it along its course by aiming with a lead calculated upon the estimated speed, direction, and distance away. Such "tracking" is thrown out of gear if the tank runs a little stretch, stops, runs some more and again stops, and keeps repeating this procedure [throwing in a change of direction now and then]. This is no theoretical assumption, we are told, but a fact proved by numerous firing tests. It sounds reasonable.

Another big advantage gained by halting at intervals is the opportunity afforded the crew to examine the terrain and search for antitank guns and obstacles. Moving, the crew sees very little through eye slits or 'scopes; for with hatches all closed they are blinded.

Thus, by running and stopping, attacking tanks acquire all the maneuvering advantages of infantry — fire and movement. Their maneuver simply becomes more rapid and their attack more brisk. In every way the procedure outlined proves to be the surest way of making a successful attack and of reducing losses to a minimum.

Should the enemy make an armored counterattack, the best way for the tanks to break it up is immediately to take firing positions.

We must then, it is contended, abandon the idea that tanks on the battlefield can effectively combine fire directly with movement. Instead, tanks must make movement complementary to "halting fire."

There is much to be said in favor of the theories outlined by this German writer but it should be borne in mind that tanks comprising a mass attack will in normal terrain find very few chassis defilade firing positions, or firing positions screening them effectively from enemy weapons. When close enough to stop and fire effectively at enemy positions they will more often than not be exposed to return fire.

MOTORIZATION AND MECHANIZATION. [Motorisation et mécanisation.]

UNITED STATES

Cavalry Armored Car "T 7."—This armored car, also known as the "T 3," is mounted on a four-wheel, commercial-type truck chassis. Its armament is a caliber 0.50 machine gun, two ordinary machine guns, and an automatic pistol. It carries four men, has 0.26-inch armor, weighs 3 tons, and makes 68 miles per hour.

FRANCE

"Berliet U.D.B.4" Armored Car.—This four-wheeled armored car carries from 0.30 to 0.35-inch armor, one machine gun in the turret and one in reserve, and has a crew of three. Its 42 horsepower motor gives it a speed of 37 miles per hour. It weighs 4½ tons.

"Berliet U.D.P.B." Armored Car.—This armored car has a 50 horsepower motor giving it a speed of 46 miles per hour. It has two machine guns, one equipped to fire at aircraft. There are four in the crew. Its thin armor (0.12 to 0.30-inch) protects it, at 500 yards, only against rifle fire. It weighs 3½ tons.

JAPAN

Armored Car, Model "2592."—Six wheel, 5.85 tons, 75 horsepower, 50 miles per hour, two machine guns in turret, four to five men, 0.30 to 0.43-inch armor.

U.S.S.R.

Antitank Defense.—M. Nowoslobodsky concludes from a study of current European doctrines that:

(1) Every infantry attack will be supported by tanks, varying from 10 to 25 against each thousand yards of hostile front and as high as 50 in important sectors.

(2) A division front in defense varies from 4,400 to 8,800 yards. Against this front the tanks will hit three successive lines of antitank defense:

In the first line, antitank cannons of 20 to 25-mm caliber.

In the second line, 47-mm antitank cannons.

In the third line, 47-mm antitank cannons and regimental and division artillery.

(3) Infantry allotments of antitank guns should be based on one gun per 100 yards of front. Each gun should be able to neutralize from three to four tanks. A division reserve of antitank guns should be provided for reinforcing regimental weapons in dangerous sectors.

(4) In some armies, part of the antitank missions are given to infantry automatic weapons. These should be considered merely as make-shifts.

(5) The cannon tank does not seem to be seriously considered in antitank defense. Some maintain, however, that such a machine would be very effective.

The intervention of aviation does not seem to be held as a practical means of action in the defense against tanks.

CONFERENCE ON THE MILITARY AUTOMOBILE.

[Conférence sur l'automobile militaire.] General Altmayer

General Altmayer foresees tank versus tank battles and massed flank attacks by armored forces.

SWEDEN AND THE BALTIC.

[La Suède et la Baltique.] Doctor Sell

As the largest and most popular Baltic country, Sweden occupies an important place in events on the Baltic Sea. It has 7,624 kilometers of sea coast, 1,657 kilometers of frontier contiguous with Norway and 536 bordering Finland.

Since 95 percent of Swedish commerce goes abroad, Sweden is practically an insular state.

The author of this article discusses the manner in which a Russian attack upon Sweden might be made and the defense which Sweden would have to adopt to meet such an attack.

September 1937

ON THE ROAD TO RELEASE FROM GERMAN CONTROL.

[Sur les chemins de la délivrance (septembre-novembre 1918).

Major Hanut

A resume of the German and Allied situations in September 1918, and of the general offensives from 26 September to 11 November; accompanied by a map showing various lines, troops, offensives, and territory occupied.

INTERNATIONAL LAW AND WAR.

[Le Droit des Gens et la Guerre.] (II) Colonel Voncken

AERIAL WARFARE AGAINST LARGE CITIES.

[La guerre aérienne contre les grandes villes.]

Since the beginning of the Spanish Civil War [and more recently, the Sino-Japanese War], air bombardment of cities is more than ever a topic

of the day. Seemingly it has become definitely established as a wartime measure.

In 1914, the German armies opened the campaign with eight Zeppelins in service. Of these, in four weeks, four were destroyed; the Z6 at Liege, the Z7 in the Argonne, the Z8 near Badenweiler, the Z5 in Poland.

During 1915 and up to the end of 1916, a series of air attacks were launched on London, using high-explosive and incendiary bombs. The year 1917 was the crucial one for London. Two attacks, on 13 June and 7 July, produced the following results (British figures):

DATE	NO. OF PLANES	BOMBS DROPPED	KILLED	WOUNDED
6-13-17.....	14	92	145	382
125,953 pounds sterling of damage				
7-7-17.....	21	64	53	182
203,821 pounds sterling of damage				
Total.....	35	156	198	564
329,774 pounds sterling of damage				

A comparison between day and night air attacks [by Germans], according to World War data, reveals the following facts:

DAY ATTACKS				
BOMBS DROPPED	KILLED	PERCENTAGE PER BOMB	WOUNDED	PERCENTAGE PER BOMB
1,079	396	0.36%	1,134	1.05%
NIGHT ATTACKS				
156	198	1.2%	564	3.05%

These figures indicate, in general, that day attacks cause fewer losses than night attacks.

The air bombardments suffered by London during the campaign are summarized below.

ATTACK	BOMBS DROPPED	LOSSES	PERCENTAGE KILLED PER BOMB
Zeppelin attacks, 1915.....	395	120	0.3
Day attack by planes:			
28 November 1916.....	6
13 May 1917.....	92	145	1.57
7 June 1917.....	64	53	0.8
Zeppelins, 19 October 1917.....	3	33	11.0
Night attacks, planes, 1917.....	560	84	0.15
Night attacks, planes, 1918.....	121	159	1.3
Totals.....	1,241	594	0.47

From all the air attacks on Paris, 1914-1918, are derived the following figures:

INCENDIARY BOMBS		FRAGMENTATION BOMBS		KILLED	WOUNDED
Paris	Suburbs	Paris	Suburbs		
38	72	314	483	242	562

Twenty years have passed and now aerial gas attack has become a normal combat measure. Considering the progress in matériel, what will be its effect on future warfare?

Mr. Frank Morison, a British author, comments in this wise:

(1) This new type of war is opposed to all moral sentiments; "it is a return to barbarism."

(2) Mass air attacks which are uncontrolled may have worldwide repercussions. Most large cities contain foreign colonies, many of them occupied by nationals of neutral countries. It should not be forgotten, says Mr. Morison, that several hundred torpedoed Americans caused the United States to enter the war on the side of the Allies. Right now, for example, London contains: 11,564 Italians, 12,567 Germans, 39,355 Russians, 7,394 Frenchmen, not to count thousands of Swiss, Poles, Americans, Dutch, and Belgians.

(3) Aerial gas warfare is a two-edged weapon. A million deaths in London today will cause in retaliation, tomorrow, an equal million in Berlin, Paris, or Rome. Moreover, an aerial counterattack far behind the combat zone is certain to spread rapidly and seriously affect the field army.

(4) Success in the conduct of such operations depends above all on the morale of the combatant.

Shortly after the outbreak of totalitarian hostilities, the fear of reprisals would not fail to upset internal affairs and even to threaten the life of the nation.

Results in London and Paris show that on the whole the people eventually resign themselves to fragmentation and incendiary bombs. However, large-scale gas bombardment from the air, the picture of tomorrow's war, certainly would create a panic with its attendant consequences and wholesale flight of the inhabitants of an infected area. Hostilities of such a nature, loosed on a large scale, would soon plunge the civilized world into an unheard of chaos which could only be remedied by rebuilding upon a new and more substantial base.

However, the launching of fragmentation, incendiary, and chemical bombs is possible within cities upon certain, designated targets; such as the admiralty, ministry of war, docks, etc.

The passive and active defense should be organized to meet such attacks.

To obtain an idea of the effect of air bombardments, the author recalls that one 2200-pound bomb dropped on Paddington, London, in March 1918, completely destroyed four dwellings and seriously damaged twenty others in a radius of 65 yards, and 119 others, less seriously, within a radius of 200 yards. One two-ton bomb on Parliament, and another on the ministries, would in one stroke disrupt the regular course of the entire Imperial Government.

Today, bombing is done from altitudes defying anti-aircraft cannon fire. Moreover, if one considers that in March 1917, 258 incendiary bombs were scattered on an average of seven bombs to the square kilometer [8 per square mile], it may be assumed that a proportion four times greater can now be reached.

THE NEW INFANTRY CANNON OF THE DUTCH ARMY.

[Le nouveau canon d'infanterie de l'armée hollandaise.]

A considerable number of infantry cannon have been ordered by the Dutch Army from Bohler and Company in Vienna, a part for delivery by the end of 1937.

Principal characteristics: 47-mm caliber; fragmentation and armor-piercing shells; muzzle velocity—2,150 f/s with AP shot, 1,150 f/s with fragmentation shell; weight of AP shot, 3.2 pounds; of fragmentation shell, 5.4 pounds; maximum range, about 8,000 yards; weight of piece in battery, about 680 pounds; weight in travelling position, about 760 pounds; barrel length, 39 calibers; maximum rate of fire, 20 rounds per minute.

The cannon has an articulated base but no shield, although means for attaching one are provided. Wheels can be raised during firing. At low angles of elevation the weapon can be fired on wheels.

OUR (SWISS) INFANTRY INSTRUCTION.

[L'instruction de notre infanterie.] Captain Nicolas, Swiss Army

The author briefly compares Swiss with German infantry instruction. Since the Swiss Army consists largely of short-term militiamen, these troops receive much less training than German two-year men, especially in field, or combat training. In firing practice, however, Swiss infantry receives more instruction. On the whole, improvements are needed.

AMMUNITION ALLOWANCE OF GERMAN CAVALRY.

[Les dotations en munitions de la cavalerie allemande.]

	INDIVIDUAL ALLOWANCE	UNIT ALLOWANCE
Per rifleman.....	1 hand grenade	3 hand grenades
Per carbine.....	90 cartridges	270 cartridges
Per light MG.....	2,500 cartridges	7,500 cartridges
Per heavy MG.....	5,000 cartridges	15,000 cartridges
Per light minenwerfer.....	120 shells	360 shells
Per heavy minenwerfer.....	30 shells	90 shells
Per AT cannon.....	180 shells	540 shells
Per field piece.....	200 shells

One third of the allowance is carried by the individual or accompanies the weapon, one-third is in the combat train vehicles, and one-third in the regimental trains.

ORGANIZATION OF ENGINEERS IN THE NEW GERMAN ARMY.

[L'organisation des pionniers dans la nouvelle armée allemande.]

Lieut. Colonel Georgi

In Germany division engineers comprise one battalion, except in frontier divisions which have but one company.

The battalion of engineers consists of: a headquarters (32 men), a platoon of signal troops (30 men), two ordinary companies, one motorized company, a matériel echelon, bridging equipment (80 meters), light engineer train (infantry material). There are 900 men in the battalion.

The motorized engineer company, consisting of 200 men on trucks, comprises:

- One headquarters platoon — one cross-country passenger car, two signal (telephone) vehicles, two motorcycles
- Three platoons, each having two cross-country passenger cars, three trucks and one motorcycle
- One munitions and repair echelon, having a cross-country passenger car and three trucks, two being repair vehicles
- One baggage echelon comprising three trucks and a kitchen.

The ordinary engineer companies consist of four officers, 18 noncommissioned officers and 156 privates.

There are nine automatic weapons in the company. The engineer company has a munitions and repair echelon identical with that of the motorized company, and has a baggage echelon comprising two trucks, a horse-drawn vehicle, and a horse-drawn kitchen vehicle.

The army corps, in which are grouped two or three divisions, has a motorized engineer battalion of four companies, two matériel echelons, and two bridge trains (120 meters, and 50 meters of rapid-crossing bridge).

Lieutenant Colonel Georgi also indicates the composition of the tactical and technical "barrier" detachment of the army corps. This comprises: a motorized reconnaissance detachment, a machine-gun battalion (24 MGs), an antitank company, a corps engineer battalion, a chemical platoon (eventually), a motorized infantry regiment, a bridging platoon. These elements are, in general, levied from the organic units of the army corps.

AVIATION REVIEW.
[Revue aérienne.]

GERMANY

Airplanes with Steam Motors. — In Germany an intense effort is being made to develop steam motors for aircraft use.

Such a motor has three particular advantages: first, there is no magneto whose action could be stopped by special rays which modern science is capable of developing; second, high-priced fuel can be eliminated — an advantage for Germany; third, a steam motor makes much less noise than a gasoline motor.

Astonishing results have been obtained in recent experiments with steam motors both in Germany and the United States.

Though steam motors would be too heavy for light craft, they seem to be suitable for machines whose motors develop up to several thousand horsepower.

In 1932, the Wesler Brothers built a high-pressure steam motor (90 atmospheres of pressure) that developed 150 horsepower and weighed only 175 pounds. This motor was tried out in a biplane at Oakland airport.

Germany bought the rights to build this model and began construction in the Henschel plant at Cassel. Although the specifications of this steam motor are secret, several details of the plane have appeared in the foreign press: length, 21 meters; power of the engine, 2,500 horsepower; speed in flight, 240 miles per hour; radius of action, 267 miles at 29,500 feet; ceiling, 42,620 feet.

FRANCE

Single-seater Pursuit "Loire-Nieuport 161." — Equipped with 860 horsepower motor (at 13,000 feet); low-wing, and retractable landing gear; Hamilton triple prop with two adjustments; armament, one motor cannon; weight, empty, 3,845 pounds; total weight, 5,000 pounds.

Performance: maximum speed on the ground, 246 miles per hour; at 13,000 feet, 297 miles per hour; at 32,500 feet, 246 miles per hour; landing speed, 68 miles per hour; climbs to 6,500 feet in 2½ minutes; to 13,000 feet, in 4 minutes 58 seconds; to 19,500 feet, in 7 minutes 49 seconds; and to 32,800 feet, in 20 minutes 32 seconds; theoretical ceiling, 36,300 feet.

ITALY

Two-seater Pursuit "Breda 64." — The Breda 64 is a low-wing monoplane, powered by a Piaggio-Stella IX, 610 horsepower motor. It is intended for use as pursuit, reconnaissance, or rapid bombardment. Its total weight is 5,500 pounds; speed, 213 miles per hour.

U.S.S.R.

Long-range Monoplane "A.N.T." — This plane, whose construction is described in detail, is completely electrified. This is the plane with which Soviet aviation broke the world's distance record on 14 July 1937, covering 10,200 kilometers in 62 hours of flight.

Take-off of this ship, fully gassed (more than 11 tons), is accomplished by using a cement incline, and a run of approximately one mile.

MOTORIZATION AND MECHANIZATION.
[Motorisation et Mécanisation.]

SPAIN

Tank and Antitank Defense in Spain. — The Nationalists use two types of tanks: the light, armed with one light automatic weapon; and the medium, armed with a large-caliber machine gun. Both have two-man crews. The light tank attains 31 miles per hour. The small track on this tank causes trenches to be a serious obstacle to its movement.

The Government troops use the heavy [medium] tank employed by the Soviet Army. This tank is armed with a machine gun, an automatic or rapid-firing cannon, and often with a flame-thrower. It is amphibious, and long enough to traverse obstacles.

However, in most cases, the Russian tanks were destroyed, for the use of rubber in the tracks permitted the Nationalist troops to shower them with gasoline and then set fire to them. In one attack six out of seven engaged were set afire. As a result, the militiamen sabotaged their machines from fear of having to use them with such dire results.

The antitank cannons of the Nationalists have, in general, done well — particularly those mounted on rubber tires and protected by an armor shield. Their accuracy of fire is remarkable. When the crews have nerve enough to let a tank approach, they disable it calmly and effectively.

These results, however, should not be used to draw conclusions as to the value of tanks. From the reports of observers, it appears that never have more than 50 tanks been used in the same battle by either adversary. From that it seems likely that each belligerent might have a hundred machines for 2,500 kilometers (1,550 miles) of front. Such a "mass" cannot be expected to bring a decisive result. The World War demonstrated that tanks must be used on a wide front and in depth. The waves must follow each other to penetrate the front and exploit the success.

Moreover, everything has been improvised in Spain. Whereas armored troops serve for several years to acquire proficiency in the armies of the major powers, the Spanish soldier has had to familiarize himself with foreign matériel in several weeks.

Consequently, the only conclusions which can safely be drawn from the war in Spain are ones associated with the machines themselves and the modifications they require.

ORGANIZATION OF ITALIAN SANITARY SERVICE AND PROTECTION OF COMBATANTS DURING THE ETHIOPIAN WAR.

[L'organisation du Service de Santé italien et la protection des effectifs pendant la guerre d'Ethiopie.] Major Huard

The balance sheet showing losses of soldiers and workers, whites and natives, during the Italian campaign in East Africa, is an astonishing record of sanitary success.

By March 1936, the strength of the Italian forces engaged in the campaign had reached 400,000 men, of whom 300,000 were on the northern front. The workmen under military sanitary control climbed from 30,000 in September 1935, to 90,000 or more in March 1936.

The losses from May 1935, to September 1936 were:

Killed: 4,200.....	{ 1,500 white soldiers 100 white laborers 2,500 Ascaris
Died of illness: 4,300.....	{ 3,200 white soldiers 1,100 white laborers
(not counting Ascaris)	
Wounded: 8,000.....	{ 3,500 white soldiers 4,500 Ascaris

Evacuated to Italy: 20,000 to 25,000 whites.

The sanitary fleet consisted of eight hospital ships having a capacity of 6,000 beds. This fleet saved many lives by taking individuals unfit for tropical service back to Europe to recuperate.

Besides the figures given above, several other items are interesting: Of the killed, there was one officer for every five or six soldiers; and five Ascaris for every three whites, which was in proportion to the relative effective strength. In all, there was one killed out of each 100 men. Among the soldiers, from 1.75 to 2.0 percent were killed in action and died of disease; among the laborers, from 1.2 to 1.8 percent.

The author draws an interesting comparison between this campaign and other colonial campaigns of the past. Considering only deaths from disease, he shows:

Tonkin — 1890 (1 year).....	8,500 men	1,125 deaths (13.25%)
Madagascar — 1895 (10 months)...	13,000 men	4,200 deaths (32.3%)
Transvaal — 1900 (7 months).....	200,000 British	5,200 deaths (2.6%)
East African — 1915-18 (3 years)....	50,000 men	6,300 deaths (12.6%)
Ethiopia — 1935-36 (15 months)....	350,000 Italians	4,300 deaths (average estimate) (1.2%)

Breaking this down to deaths per 1,000 men per year, which gives a comparative picture, we have:

Tonkin.....	132 per 1,000
Madagascar.....	377 per 1,000
Transvaal.....	44 per 1,000
East Africa.....	42 per 1,000
Ethiopia.....	10 per 1,000

That the scourge of typhus, scurvy, and recurrent fever, which decimated the Abyssinians, was kept from hundreds of thousands of Italians, and that impaludism, dysentery, typhoid, never got out of control, are achievements which indicate excellent organization and rigorous sanitary discipline — well worth citing.

THE MAKING OF OFFICERS IN GERMANY.

[La formation des officiers en Allemagne.] Captain Feenstra, Dutch Army

During 1936, three steps of the greatest importance were taken by the new German Army. On 7 March, the Rhine demilitarized zone was occupied. On 24 August, military service was extended to two years. On 5 October, the reorganization of the army prescribed by the law of 16 March 1935, was completed; that is, 12 army corps comprising 36 divisions, a mountain brigade, a cavalry brigade, and armored troops still in process of organization.

The ones who performed this heavy task were the 4,000 officers of the old professional army of 100,000 men.

In completing the cadre of officers, several methods were used. First, the number of young officers to be trained was greatly increased. A large number of the younger post-war officers who had quit the service were reappointed. Many officers of the "Landes polizei" were accepted into the army. And lastly, many noncommissioned officers were promoted to the officers' corps.

For the preparation of new officers the old traditions have been followed. The candidate enters as a "fahnenjunker" in the regiment of his choice and is trained with the young recruits. Then the candidates are grouped in a class for intensive preparation for the military academy (Kriegsschule).

After about a year of service in the regiment, they go to the Kriegsschule for a ten-month course, common to all arms. Besides practical instruction, great importance is accorded to tactical instruction.

The several branch schools are annexed to the Kriegsschule, each arm having its appropriate courses. In these courses, practical military instruction is stressed so that every officer when assigned to troops will be able to carry out his duties as platoon commander.

After two years in school and subsequent transfer to troops, the candidates are promoted to second lieutenants.

To be allowed to be examined for admission to the war college (Kriegsakademie) [similar to our Command and General Staff School], an officer must be favorably recommended by his superiors. The courses there are three years long. After taking this course, certain officers are designated for the general staff; never immediately, however, for they must first pass successfully through several preliminary stages and perform certain detached duties.

Recently, it has been decided to follow the example of other countries by organizing a college for higher military studies—the Wehrmachtsakademie. Its courses are to be given to general staff officers of the army, navy, and air force. The instruction is in the conduct of all armed forces.

MILITARY VIEWPOINT OF WORLD PETROLEUM POLICY.

[Le point de vue militaire de la politique mondiale du pétrole.]
W. Thurow

Oil has come to occupy a prime position in the supply of armies in campaign. As Clemenceau said in Washington, in 1918, "a drop of gasoline is worth a drop of blood."

The increase in production and consumption of gasoline from 1935 to 1936 for various countries is shown in tabular form. Summarized, we have the following increases, by percentages, shown in the order of relative production: United States, 12.5%; U.S.S.R., 13.2%; Venezuela, 7.5%; Rumania, 4.3%; Iran, 11.7%; Dutch Indies, 5.0%; Mexico, 3.7%; Iraq, 19.0%; Columbia, 7.4%; Peru, 1.3%; Argentina, 7.6%; Trinidad, 14.7%; British Indies, 11.8%; North Borneo, -0.3%; Poland, 1.2%; Bahrein (gulf of Persia), 485.7%; Germany, -1.8%; Japan (including Formosa), 14.8%; Ecuador, 7.3%; other states, 1.8%; total, 11.3%.

Another table shows the export in thousands of tons by different countries. The United States leads each year till 1935, closely seconded by Venezuela, which went to first place in 1935.

Most interesting is the fact that we produce 6% more than we consume, while the U.S.S.R. produces 33% more than is consumed nationally. On the other hand, Great Britain produces but 2% of the total consumed; France, 2%; Germany, 5%; Japan, 17%; Italy, 0.7%.

Owing to their reliance on imported gasoline, France and Great Britain must stock enough reserves to provide supplies for at least the early months of a war. In England, all the reserves laid by for a five-months' supply are stored at a distance from rivers, railways, and other points readily located by airplanes.

CANADIAN DEFENCE QUARTERLY (Canada)

January 1938

CANADA'S DEFENCE POLICY. By the Rt. Honourable W.L.M. King
BRITAIN AND THE EUROPEAN SITUATION. By a Bystander
LEADERSHIP AND MORALE. Wing Commander Tackaberry
TWILIGHT IN EUROPE. Major Scudamore

A GLIMPSE OF THE WAR IN SPAIN. By "An Observer"

THE SINO-JAPANESE CONFLICT: THE FIRST THREE MONTHS. Colonel
Nikolaieff

CAVALRY JOURNAL

November-December 1937

GENERAL PHILIP H. SHERIDAN. Lieut.Colonel Yenchar

THE OBJECTIVE AND THE CAVALRY LEADER. Major Johnston, Inf

THE COMPOSITION OF ARMY COVERING FORCES AND THE EMPLOYMENT
OF MECHANIZED FORCE IN THIS ROLE. Brigadier General Hawkins, Retired

FIVE DAYS AT FORT KNOX. Colonel Crockett, Inf

CAVALRY IN MODERN WARFARE. Lieut.Colonel Braun, German Army,
Retired

CAVALRY IN THE SPANISH CIVIL WAR. Svetayew

ATTACK VS. DEFENSE. Editorials from the British Press

January-February 1938

"THEY DIDN'T KNOW HOW."* Major Schwien

CAVALRY JOURNAL (Great Britain)

January 1938

THE YEOMANRY AT ES SALT. Major Teichman
OIL AND OATS. By "Anon"
CAVALRY BATTLE HONOURS. THE PENINSULAR WAR. PART 2. Major
Edwards
THE CAVALRY OF GHENGIS KHAN AND TIMIR (TAMERLANE). By
Thistle
DISTANCE. By "Vieux"

CHEMICAL WARFARE BULLETIN

January 1938

THE IDEAL INFANTRY DIVISION. Major Barker
SCIENCE AND FUTURE WARFARE. Captain Haldane
GAS AS A WEAPON

COAST ARTILLERY JOURNAL

November-December 1937

INDUSTRIAL PREPAREDNESS. The Honorable Louis Johnson, Assistant
Secretary of War
GUNS IN SPAIN. By An American War Correspondent
MASTERY OF THE FUTURE. Major General Harbord
DEFENDING OUR HARBORS. Colonel Green

January-February 1938

STREAMLINED ANTIAIRCRAFTERS. Major Harris

*They must have known how. Common sense does not allow us to believe that they were ignorant of the correct use of cavalry. However, they didn't use the cavalry properly and in consequence they lost the World War.

Major Schwien points out accurately, conclusively and in detail, in this article, how Germany could have won the World War had she employed the cavalry which was available and was not employed to advantage on any other mission in a manner befitting cavalry.

There is much to be learned from a careful study of this article. The application and reasoning is up-to-date. In a war today with modern weapons, mechanization and transportation, the lessons to be learned from this article would apply.

Maneuvers and command post exercises demonstrate that many officers of our army do not use the small amount of cavalry available to them to the best advantage. No field officer who aspires to gain a star or two can possibly afford to neglect a very, very careful study of this superior estimate and resultant plan of employment.—EDITOR'S NOTE.

MODERN ATTACK TRENDS. Major Tindall
A RIVER TO CROSS (PICTURES)
THE CAPTURE OF BELGRADE. Captain Gordon-Smith, Attache, Royal
Yugoslav Legation

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November-December 1937

THE FIRST ARMY CPX. Colonel Lanza
THE PROPOSED FIELD ARTILLERY REGIMENT

FIGHTING FORCES (Great Britain)

December 1937

YOUTH OR AGE? Captain Grant
AIR BOMBING. By Air Correspondent
XVIII.—THE BATTLE OF KHAN BAGHDADI. Lieut. Colonel Burne
THE NORTH-WEST FRONTIER OF INDIA. By "Watch and Ward"

INFANTRY JOURNAL

November-December 1937

WE ATTACK. Part I. Major Cooke
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TRUCK TACTICS
ONLY SECURITY CAN GUARANTEE SPEED. Captain Greene
ARMORED FORCES. Part II: COOPERATION BETWEEN ARMORED FORCES
AND OTHER ARMS. Major General Guderian, German Army
HABIT OF DISCIPLINE. Ingram Cary

January-February 1938

CURRENT INFANTRY DEVELOPMENTS. Major General Lynch
MODERN ATTACK TRENDS. Major Tindall
WE ATTACK. Part II. Major Cooke
FLEXIBLE FIRE POWER. Lieutenant Pierce

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS (Great Britain)

November 1937

THE MEDICAL SERVICES IN PALESTINE, 1936. Major-General Leslie
WAR EXPERIENCES OF A TERRITORIAL MEDICAL OFFICER. Major-
General Luce

JOURNAL OF THE ROYAL ARTILLERY (Great Britain)

January 1938

"THE ROLE, ORGANIZATION AND TRAINING OF ANTI-AIRCRAFT GROUPS,
WITH A VIEW TO THEIR EMPLOYMENT TO THE BEST ADVANTAGE IN: (a) FOR-

WARD AREAS OVERSEAS; (b) BASES OVERSEAS." ("Duncan" Silver Medal Essay, 1936/37.) Major Deane

REFLECTIONS AND RECOLLECTIONS FRANCE AND FLANDERS, 1914. By an Artillery Regimental Officer

PROPAGANDA AND WAR. Major-General Fuller

JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION

(Great Britain)

November 1937

SCIENCE AND FUTURE WARFARE. Captain Haldane

"TACTICAL AND ADMINISTRATIVE MOVEMENTS IN MODERN ARMIES HAVE BEEN RADICALLY AFFECTED BY THE INTRODUCTION OF THE INTERNAL COMBUSTION ENGINE. DISCUSS THE POSSIBILITIES OF ITS USE IN THE BRITISH ARMY IN ASSISTING TO OVERCOME THE STRENGTH OF MODERN DEFENCE AND COUNTERING THE INCREASING THREAT OF AIR ACTION." (Second Prize Essay [Military], 1936) Lieutenant-Colonel Shaw

MOTOR FUEL PROBLEMS IN GERMANY

THE UNITED STATES AND THE SINO-JAPANESE WAR. Whigham

THE SPANISH CIVIL WAR — INTERNATIONAL ASPECTS

THE SPANISH CIVIL WAR — FIGHTING ON LAND

THE POWERS AND JAPAN

THE SINO-JAPANESE WAR

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA

(Great Britain — India)

October 1937

THE FINAL PHASE OF THE MESOPOTAMIA CAMPAIGN, 12TH MARCH 1917 TO THE ARMISTICE. Part II. Lieut.Colonel Shearer

DIE KRAFTFAHRKAMPFTRUPPE

(Formerly, *Sanct Christophorus*)

By Captain H.N. Hartness, Infantry

July 1937

GERMAN TANK UNITS IN THE WORLD WAR.

[Die deutsche Kampftruppe im Weltkriege.]

REASON FOR AND CONSTRUCTION OF GERMAN TANKS. — It is well known today that the Germans employed tanks in the World War, but less known what types and how many were employed and what these units accomplished. This article has as its object the presentation of the German tank in the war and what it accomplished.

In 1916 the Allies introduced the tank as a new combat means. The great capabilities exhibited by the tank in the first attack led to the building by the Allies of masses of tanks. The tank combat in the vicinity of Cambrai in November 1917, delivered the proof of the effectiveness of the tank as a combat weapon.

Initially, the Germans delayed the construction of tanks because the initial success of the German troops in defending against hostile tanks was

so great (numbers of them lay destroyed between the lines) that it was believed that a brave defender with his means would be able to defend against the tank attack. However, the number of hostile tanks became greater and the defensive power of the German Army against them became less, this lessening of the defensive power being the direct result of insufficient defensive weapons and the necessary ammunition.

Consequently, the German High Command desired to build its own tanks once the tremendous worth of this means of attack was recognized. Many difficulties lay in the way, the greatest being lack of material; a lesser, a lack of suitable models.

As a result of the various delays, German tanks were first available and were first employed in the great spring offensive of 1918.

THE GERMAN TANK MATÉRIEL. — In November 1916, the war ministry had decided upon the construction of tanks, but at this time the technical bases and models of construction and types were not at hand. It was through the capability and energy of Chief Engineer Vollmer and his assistants that the necessary preliminary matters were prepared and construction could be begun.

On the side of the Allies a number of types of tanks were employed. The Germans employed only one German type tank, the A7V tank; they did, however, make use of a number of captured Mark IV British tanks.

On the German A7V tank the tank track was protected by armor plating, whereas the tracks of the British heavy and the French light Renault tanks were not protected. The German tank was provided with two 100 horsepower motors, one driving each track; this gave to the tank a maximum speed of 16 kilometers per hour. This speed was essentially greater than that of the heavy British and that of the French Renault, each of which could travel about 8 kilometers per hour. The armament of the A7V consisted of a 57-mm cannon and six heavy machine guns with a crew of 26 men. Normally the tank commander was an officer. The construction of the tracks on the German tank provided it with less terrain mobility, less ditch and trench crossing capability, than that of the French and British tanks. This necessitated an especially thorough reconnaissance of the terrain of attack, which did not, however, work to a disadvantage except in a very small number of instances.

The armament was quite strong — at the most vulnerable areas, 30-mm; on the sides, 16-mm; and in rear, 20-mm. By oblique construction the penetrating effectiveness of hostile bullets was still further diminished. An example is cited in which a tank was struck by a 75-mm projectile, the result being merely a denting of the armor plating.

The German A7V tank was 22¾ feet long, 11½ feet wide, and 10 feet high. The vehicle had three compartments: the forward with the 57-mm cannon and two machine guns; the rear with four machine guns and signal personnel; and the tower in which the commander of the tank and the driver sat. The two compartments were joined together by two passageways. The ammunition boxes were used as seats for the crew. The tank could cross a trench eight feet wide.

As a result of the very good German defense, a great number of British tanks fell into their hands. Those that were only slightly damaged or not at all damaged were repaired and renewed in a large repair shop in Charleroi. In this manner the Germans had at their disposal a number of these captured British tanks. Although it is well known that in England during the war there were built five heavy types of tanks, Mark I to Mark V inclusive, the type Mark IV is the one primarily employed by the Germans, the reason being that the Mark IV had such slow speed (its greatest speed being 8 kilometers in the hour) that they fell comparatively easy prey to the German defense and consequently into German hands.

The slowness and difficulty of maneuver of the heavy tanks led the French and British to decide upon the construction of lighter tanks. Germany likewise intended to concentrate its construction upon the lighter type. The lighter type offered, in addition to the great advantage of more rapid movement and better maneuverability, the fact that the lighter models required less material and were less costly. Moreover, at this stage the

Germans, through their experience, had come to the conclusion that success could be achieved only by the mass employment of tanks.

Therefore, there came into being the light tanks LK I, LK II. These two models had the following capabilities and characteristics: a 50 horsepower motor providing a speed of 18 kilometers per hour. The armament consisted of two machine guns or one machine gun and a small cannon, and the crew of a commander, a driver, and a gunner, the armor plate between 8-mm and 14-mm, weight 17 tons. The tracks were constructed similarly to those of the French and British tanks.

It is worthy of note that a type LK III was built, a sort of compromise solution, since the material required for the LK I and the LK II was not to be had in the quantities necessary.

The High Command decided in May 1917, after the first A7V tank had been demonstrated, to build a still larger tank, the so-called "Great Tank." This tank was to have two motors, each of 600 horsepower. Its greatest speed should be $7\frac{1}{2}$ kilometers per hour; it should be 42 feet long, $10\frac{1}{2}$ feet wide, and 9 feet high. Its armament was to consist of four 77-mm field pieces and two machine guns, with a crew of 22 men, an armor plating of 32-mm, and a weight of 150 tons. Since it would not be possible to transport this vehicle in one piece, it was provided to construct it so that it could be transported in loads of 15 to 20 tons each. In the tank, electrical signal apparatus was constructed so that communication between all parts of the tank and all members of the crew could be quickly accomplished. By the end of 1918 two of these vehicles had been constructed, but their suitability and capabilities could not be tested. The constructor requested that a test run be made; the Allied commission would not permit this, and both tanks were destroyed.

It is obvious that Germany constructed and tried out several different types of tanks, but the only one actually employed at the front and that at the beginning of the year 1918 was the A7V.

Originally it was intended to build 100 heavy A7V tanks. As a result, however, of the lack of the necessary armor, only 20 were constructed. The other 80 were finished as chassis without armor and were employed primarily for the transportation of ammunition and matériel in the front areas, particularly for the delivery of ammunition to the foremost battery positions.

THE ORGANIZATION OF THE GERMAN TANK UNITS. — In February 1918, there came into existence the first German tank unit, designated "the first assault armored vehicle detachment." Later the tank units were designated as "heavy tank detachments" or, in so far as they were equipped with captured British Mark IV tanks, "captured tank" detachments.

At the head of the German detachments was the "Commander of Tank Detachments" who was under the chief of the field motor transportation units. The permanent headquarters of the detachments were in and around Charleroi, Belgium. Each detachment consisted of two echelons; the first, the combat echelon, consisting, as a rule, of five heavy tanks, one to two motor cars, one motorcycle and the repair and matériel truck. The remainder of the detachment formed the second echelon, which carried gasoline, oil, ammunition, replacements, rations and repair units. Each detachment consisted in reality, in combat strength, of five heavy tanks. In April 1918, there were three German and two "captured tank" detachments. By the middle of May, two additional "captured tank" detachments were ready for employment. By the end of the war the German tank units numbered three German and six "captured tank" detachments. That means that as a maximum at one time there were available for employment 45 tanks, in comparison to the enemy, an extremely small number. This fact is all the more notable when we consider the amount of success achieved by this small number.

After employment in combat, it was generally necessary to withdraw the tanks for repair and reconditioning. Since there existed but one suitable repair shop, the Bavarian Army motor park No. 20, in Charleroi, we find here the answer to the question, "why was the headquarters of all detachments in Charleroi?" Replacements in personnel were obtained through volunteers; therefore this personnel was excellent. In the autumn of 1918,

based upon battle experiences and upon the fact that the enemy was experimenting with a new organization, the Germans concluded that the detachment as a unit of five tanks was too weak. Therefore, the former three German detachments were formed into one detachment. Because the war ended, the formation of further large detachments was not effected. The plan existed to organize the light tanks under construction into battalions of three companies each, thirty tanks in each company. This organization would have provided the battalion with approximately 100 tanks, including the commander's tank and a reserve. The execution of such a plan would have provided Germany, at the beginning of 1919, with a tank mass; its consummation was not realized.

ACCOMPLISHMENTS OF GERMAN TANKS IN THE WAR. — German tank detachments participated in important offensive operations and also defensive operations. Their employment resulted in considerable successes and particularly in help to the infantry. Sometimes their employment was a decisive factor in the course of the battle.

The first employment of German tanks took place on 21 March 1918, in the great spring offensive near St. Quentin. For disposal in this offensive there were one German and one "captured tank" detachment. Each detachment was assigned to an assault division. The mission prescribed crossing the hostile trenches and beating down the machine-gun nests and nests of resistance in cooperation with the "storm battalion Rohr" with which these tank detachments had already practiced. The new arm moved into combat without experience and even though no effective far-reaching results were obtainable, this first small employment brought a noteworthy success and the first practical battle experience. Several, especially the captured tanks, were unable fully to fulfill their missions because of technical difficulties. The enemy was completely surprised. Favored by the fog, the moral success was great and provided an effective support for the infantry attack. The German losses were extremely small; the tanks on the other hand captured a number of prisoners. This initial baptism under fire was successful.

A second contemplated employment at the beginning of April by the Sixth Army was not carried through since a stream constituted a hindrance which was not overcome by the early construction of a bridge.

On 9 April, in the vicinity of St. Gobain, tank employment was ordered, but because the enemy evacuated his position, in a surprise move while the tank units were still approaching, this attack was not executed.

In the vicinity of Villers-Bretonneux (not far from Amiens) the first large and very successful employment of tanks was made. Three German detachments, consisting of 14 German A7V tanks, which advanced in three groups, were employed in the zones of the XI and XIV Army Corps, in support of the infantry attack against Villers-Bretonneux, the Hangard Woods, and Cachy. Preliminary reconnaissances indicated favorable employment. Very great success attended this undertaking. The British fled, almost panic stricken, in the face of the heavy fire of these 14 tanks; the tank employment was materially aided by a heavy fog which did not permit the British defense guns to fire effectively. The loss to the German infantry was slight and can be attributed to the fact that the tanks soon reached their initial objective and were able to return and accompany their infantry forward. The mass of the hostile areas of resistance was destroyed. The infantry secured a great number of prisoners.

British and German tanks were opposed in this battle for the first time. The German was the victor. The loss to the Germans was one tank, one officer and 8 noncommissioned officers and men killed; 3 officers, 48 noncommissioned officers and men wounded; and one man unaccounted for.

On 27 May the "captured tank" detachments Nos. 11 to 14 were employed by the Seventh Army in support of the infantry attack against Soissons. In this attack the tanks reached the designated objective.

On 1 June the first tank detachment had the mission of attacking Fort Pompelle. The terrain for this attack was extremely unfavorable. In the first place, the tanks had to cross the very broad and badly blown up trench system of their own lines, the terrain of attack sloped toward Rheims, and

this terrain was easily visible from the heights in rear of Rheims so that the French artillery had very favorable firing positions and observation. Consequently after a short time several of the tanks were brought to a standstill. One tank was destroyed by artillery fire. Although this tank attack was not successful as a tank attack, it did produce a situation in which the hostile infantry attention was centered on the tanks and the German infantry was thereby assisted in reaching the assigned objective.

"Captured tank" detachments 13 and 14 were also employed in this engagement and although they effectively supported the attack initially they suffered under the very strong hostile artillery fire. The inability of these two detachments to give full support to the infantry attack was partially responsible for the success of the French recapture of the terrain which had been won by the German infantry. Several tanks of these two detachments were lost, and losses in men were also comparatively large: 4 officers, 2 noncommissioned officers, and 9 men.

The tank detachment No. 2 was given the mission of attacking in close cooperation with the 3d Battalion of the 476th Infantry Regiment with limited objective in order to beat down as many as possible of the known hostile machine-gun nests. The attack of this combined tank-infantry unit took place at 7:00 in the evening, whereas the attacks of the 1st Tank Detachment and the 13th and 14th "captured tank" detachments took place at dawn. Detachment No. 2 was unable to fulfill its mission because in the approach along the road one tank was destroyed by a direct hit and the others, unable to negotiate the very difficult terrain on either side of the stream, could not advance. Darkness ended any further attempt on this day. The losses to this battalion were 3 men dead, 2 officers and 2 men wounded, 1 man sick from gas (during this attack, gas had limited the employment of the tanks).

After this attack on 1 June, the 1st detachment was shifted to another scene of action and in conjunction with the 3d detachment was to participate in the attack of the Eighteenth Army between Montdidier and Noyon on 7 June. This attack was postponed until 9 June to permit the massing of the necessary artillery. The mission of the tanks was to support the attack of the infantry up to include the third hostile position. Although the two detachments lost one tank at the first hostile position, and lost 2 officers, 7 noncommissioned officers and men, the task assigned to these two detachments was satisfactorily completed.

The German detachments 1 and 2, and the "captured tank" detachment No. 13, were successfully employed on 15 July by the Eighteenth and Seventh Armies on the Marne.

On 31 August two detachments (10 tanks) were successfully employed on small missions by the Seventeenth Army.

In the withdrawal of the entire German front to its organized rearward positions, tanks were employed on the important mission of counterattacking and driving back the enemy who had penetrated or partially penetrated the lines of the withdrawing troops. The execution of this mission by the tanks was a contributing factor in carrying through the planned withdrawal.

On 7 October, tank detachment No. 3 was employed in the vicinity of St. Etienne; on 8 October the "captured tank" detachments 11, 15 and 16 successfully participated in the defense south of Cambrai by the Seventeenth Army.

The most successful of all these offensive employments in the defense took place on 11 October 1918, in the area north of Cambrai. By the end of September, detachments 1 and 13 had already assembled near the regiments which should execute the counterattack. But this counterattack was unnecessary since the enemy did not penetrate the position and therefore the contemplated tank employment was not executed. This employment to eject an enemy who had penetrated the lines took place on 11 October, against the British. The hostile barrage fire began about 10:00 A.M. A short while later a strong hostile attack was launched against the weak German infantry which was unable to maintain its position. In fact, the British, fully believing that they had accomplished a breakthrough, had employed their cavalry. The combat was now taking place in rear of the

German position and German trenches. It was at this time that the tanks were employed in counterattack and they were successful in throwing back the enemy beyond the former German line and were successful in winning terrain in several areas which had, before the British attack, been in British hands. Several tanks advanced as far as 8 kilometers behind the British lines and created considerable disorder and losses among the British reserves. The losses of the British were very great because the effectiveness of the tank weapons, capable as they were of shooting in all directions, were able to engage hostile targets both to the front and flanks. It is worthy of note that in reality detachment No. 1 alone took part in this counterattack since technical trouble and damages to the individual tanks prevented participation by "captured tank" detachment 13.

The last employment of German tank units (the 12th, 13th, and 14th detachments) took place on 1 October near Valenciennes. This last attack and its results were similar in every respect to those at Villers-Bretonneux. The German tank elements had not only proven themselves in the attack but also in the counterattack.

The remainder of this article concerns itself with praising the accomplishments of the German tank units in the World War, especially in praise of the personnel of those units, and asks what tremendous results might have been achieved had the Germans had tanks in any quantities which might have been employed in the decisive direction and in a decisive mass.

August 1937

MOTORIZATION IN FOREIGN ARMIES. MECHANIZED AND MOTORIZED UNITS AND THE DEFENSE AGAINST THEM.

[Das Neueste über die Heeresmotorisierung in fremden Heeren. Fahrzeuge von Panzer- und mot. Verbänden — und die Abwehr dagegen.]

A series of short articles on the vehicles of various armies and the defense means and doctrines employed, from which three are included here:

(1) Poland: Antitank defense. Principles for the defense against armored vehicles.

In the defense: (a) The importance of employing air observers to locate early the hostile mechanized force.

(b) Every infantry division must have antitank weapons, such as heavy and super-heavy machine guns, small caliber antitank guns, light field cannons and mine throwers, which are employed in three echelons:

First echelon: Antitank rifles, machine guns, battalion and regimental guns.

Second echelon: A portion of the infantry guns as well as several cannons of the division artillery.

Third echelon: A motorized reserve of antitank cannons.

The weapons of the first echelon must be emplaced near the main line of resistance, in no instance more than 500 yards in rear of it.

Should the mechanized vehicles break through the first echelon, the second echelon brings its fire to bear on these vehicles; the first echelon guns take under fire the vehicles following those which have broken through.

On the march, one infantry battalion and its antitank guns shall precede each battery of artillery, thus forming a group or team of one infantry battalion and one artillery battery. Distance between groups: 500 yards.

(2) RECENT ANTITANK DEFENSE BY USING GASOLINE. — The following article written by Major Habina, appeared in "Przegląd Piechoty":

"The time in which the infantryman was defenseless against the tanks is past. He recognizes his weakness but now has at his disposal ammunition which at 350 yards will penetrate light armor; at 125 yards, heavier. Moreover, he has hand grenades (their supply is not so simple) and flasks of gasoline, the effectiveness of which has been proven in Spain. (The employment of the gasoline flasks presupposes the near approach of the tank to the infantryman, or vice versa). Furthermore, tank mines and antitank guns,

effective up to 1,100 yards, are at his disposal. Whereas mines are a passive means of defense, antitank guns can effectively protect the flank(s) of the infantry."

(3) **BRITISH INFANTRY EQUIPPED WITH NEW ANTITANK RIFLE.**—The "Schweizerische Monatsschrift für Offz. aller Waffen" reports: During the coming winter the British infantry will be equipped with the new antitank rifle. With this weapon the British will provide the most advanced infantry elements a weapon with which to combat light (not heavily armored) tanks. With this addition the British infantry will be strongly equipped with antitank weapons. A comparison shows that France has 30 antitank guns (cannon), Italy 32 antitank guns (cannon), and England 48 antitank guns (cannon) in the division. But each British infantry platoon will have an antitank rifle, providing all told 144 antitank weapons in the British infantry division.

October 1937

FURTHER NEWS CONCERNING MOTORIZED ELEMENTS IN FOREIGN ARMIES.

[Immer wieder Neues über die Heeresmotorisierung in fremden Heeren.]

ARMORED UNITS IN FRANCE.—The following information was taken from "Rivista di Fanteria":

In the motorized brigade of the cavalry divisions there are to be found mechanized regiments with 64 armored vehicles, 27 automobiles, 132 trucks and 271 motorcycles (most of these with side cars in which machine guns are mounted) each. The regiment is organized into a command platoon, a staff company, a distant reconnaissance battalion, a close-in reconnaissance battalion, and an armored battalion.

In the event of war, independent mechanized regiments as well as motorized reconnaissance battalions will be provided for the fully motorized infantry divisions. The regiment will consist of 36 armored vehicles, 31 automobiles, 112 trucks, and 237 motorcycles. The motorized reconnaissance battalion of the motorized division will consist of 18 armored vehicles (11 for close-in reconnaissance, 7 for distant reconnaissance), of 10 automobiles, 74 trucks, and 105 motorcycles.

The armored vehicles will be organized into companies. Vehicles used for distant reconnaissance will have a weight of 6 tons, a speed of 45 kilometers an hour, a cruising radius of 230 to 320 kilometers, light armor, and an armament of one machine gun and one 37-mm cannon. A second machine gun will be carried as a reserve. The armored vehicles employed for close reconnaissance have a weight of 3½ tons, a speed of 35 kilometers an hour, a cruising radius of 180 to 250 kilometers, light armor, and will be armed with one machine gun (a second machine gun will be carried as a reserve).

Characteristics of the tanks in the mechanized regiment are: weight 6 tons, speed 35 kilometers an hour, cruising radius 182 to 250 kilometers, and an armament of one machine gun and a cannon. These tanks will have an armor plate of 14-mm, full terrain mobility, corresponding in general to the normal light tank.

At present there are in use the following vehicles:

- (1) The White-Laffly weighing 6 tons and with a speed of 45 kilometers an hour.
- (2) The Citroen-Kegresse weighing 3½ tons and with a speed of 30 kilometers an hour.
- (3) The Schneider weighing 6 tons and with a speed of 30 kilometers an hour.
- (4) The Berliet with a speed of 60 to 70 kilometers an hour.
- (5) The Renault weighing 6 tons, with a speed of 45 kilometers an hour and with an armor plating of 14-mm.

One recognizes here the intention of making the cavalry and the infantry divisions more powerful and in providing them the means for deeper opera-

tions against the enemy. On the other hand, the conclusion must be drawn that the French now, as before, take the point of view that without armored protection the advance of unarmored motorized forces will not achieve success.

DUST MASKS FOR THE CREWS OF LIGHT AUSTRIAN TANKS.—According to "Krassnaja Swjesda," dust masks have been introduced in the Austrian Army for the use of the crews of light tanks. These masks are employed for the crews of the "Fiat-Ansaldo" light tank who, when not on the field of battle, travel with their heads above the turret. This transparent mask is buttoned on to the helmet. The advantages of the mask are that the crew while traveling is not disturbed by dust nor by insects.

TANK UNIT MANEUVERS IN RUSSIA.—According to "Krassnaja Swjesda" numerous experimental exercises have been carried through in Russia with their tank units for the purpose of testing the material under all conditions and of schooling the troops.

A winter exercise was held in the Moscow military district which had for its primary purpose the testing of the capability of tank travel in snow.

An interesting exercise demonstrated the very close cooperation of tanks with motorized infantry, this infantry operating immediately behind the tanks.

For the reconnaissance to determine whether or not tanks could cross a particular watercourse the following procedure was carried out: The tank drivers dismounted and reconnoitered the watercourse for its depth, for the condition of its bed and its banks while the remainder of the crews stayed in the tank and covered the reconnaissance of the drivers.

In these exercises great use was made of motorcyclists on the march to transmit orders; even on the field of combat motorcyclists were so employed.

AUSTRIAN TANK TROOPS.—At present there is in Austria a tank battalion organized as follows: (1) staff; (2) a command company, consisting of antitank platoon, machine-gun platoon, engineer platoon, signal platoon and staff group; (3) four light tank companies, each with a commander's tank and three platoons of four tanks; (4) an armored reconnaissance company, consisting of the commander's car and three platoons of three armored reconnaissance cars each; and (5) a service company with an ammunition, gas and oil, a ration, a matériel, and a workshop echelon. In this battalion there are 53 light Fiat-Ansaldo tanks and 10 Austro-Daimler reconnaissance cars.

ITALIAN ARMORED UNITS FOR THE SUPPORT OF INFANTRY.—According to "Krassnaja Swjesda," the Italian Army will provide four tank regiments whose primary mission is the support of infantry divisions. A regiment consists of varying numbers of battalions. The battalion will have as many companies as there are divisions in a corps. The company consists of three platoons, two of tanks equipped with machine guns and one of tanks equipped with flame throwers. In addition there will be tanks with 37-mm guns. These tanks shall work in close cooperation with the infantry, shall advance in depth, and shall be followed by the infantry at 200 meters. The 37-mm tanks shall constitute a reserve to be employed upon the appearance of hostile tanks. In the defense the procedure stated above is reversed.

It is interesting to note that these tank units which are provided for the immediate support of the infantry not only are equipped with machine guns but also with flame throwers, unquestionably a decisive weapon against living targets. Whether in the attack the close cooperation, that is the advance of the tanks and infantry at approximately the same rate, will be feasible, especially in the face of strong hostile tank defense, is doubtful. This method of attack corresponds to that employed in trench warfare. At that time the tank could only advance slowly, picking its way through the entrenched positions.

EQUIPPING POLISH TANKS WITH WIRE CUTTERS.—According to "Krassnaja Swjesda," experiments are being made in Poland to provide wire cutters on tanks which will actually cut through wire obstacles. Formerly the tank merely pulled up the stakes and the piles and dragged the wire along with it. As a result oftentimes the running gear of the tank became entangled with this wire and consequently the speed of its movement was

reduced and often any movement made impossible. The special wire cutter shall eliminate these difficulties. The wire cutter consists of two knives, one affixed to either side of the tank and projecting forward of the tank. In addition to the wire cutters in front, which open a path for the tank, an anchor is provided with about 20 feet of cable which is towed and which grasps the piles and stakes and tears them out of the ground. By such means it is believed that tanks can easily open a path several hundred meters wide. Especially valuable is such a mechanism for cutting through electrified wire. Such tanks are to be provided for the immediate and direct support of infantry in order to assist its advance over a wire obstacle with a minimum of losses.

MARINE CORPS GAZETTE

November 1937

ON THE STUDY OF JAPANESE. Captain Lasswell

THE THREE-POINT PROBLEM MEETS THE AERIAL PHOTOGRAPH. Major Kaluf

THE MARINE CORPS AND THE CHANGING CARIBBEAN POLICY. Lieut. Colonel Metcalf

WHAT ABOUT OUR FAR EAST POLICY?

MILITARWISSENSCHAFTLICHE MITTEILUNGEN (Austria)

By Major E.M. Benitez, Coast Artillery Corps

July 1937

ATTACK AND DEFENSE ON THE WESTERN FRONT IN 1918.

[Angriff und Abwehr 1918 im Westen. Ein Rückblick.] General Horsetzky

An account of the offensive tactics of the Central Powers during the World War, illustrated by plans of the attack made on 15-17 July 1918, by the German Seventh, First and Third Armies against the French position in the vicinity of Rheims, which was followed by a French counterattack on 18-20 July. The British-French tank attack southeast of Amiens on 8 August 1918 is also discussed. After analyzing the Allies' tactics in their attacks employing large masses of tanks, the author arrives at the following conclusions:

- (1) Tactical superiority of the Central Powers up to July 1918.
- (2) Fundamental changes caused by the use of tanks in large masses, which gave the initiative to the Allies and which was maintained by them until the end of the war.
- (3) The defense echeloned in depth which proved to be of great value against infantry attacks, failed against attacks supported by tanks, due to the speed of the tanks, their ability to negotiate rough terrain and obstacles, and the attainment of surprise.
- (4) The defeat of the tank attack constitutes the real future military problem.

A CORPS ATTACK SUPPORTED BY TANKS.

[Angriff eines Armeekorps mit Einsatz von Kampfwagen.] Lieut. Field Marshal Schäfer

A review of Colonel Mainie's article that appeared in the March 1937 issue of "Revue Militaire Générale." (See Quarterly No. 66, September 1937, page 180.)

FIELD FORTIFICATIONS FOR A PROTRACTED RESISTANCE.
[Über Gefechtsfeld-Befestigungen für nachhaltigen Widerstand.]
Major General v.Aarenau

A discussion of the influence of tactics and weapons upon field fortifications in recent times. Before the war, a series of defense lines was not favored; great emphasis was placed on a clear field of fire, while overhead cover for protection against shrapnel only was considered sufficient. By 1916, continuous fire trenches were being used and the requirement of a clear field of fire for short and medium ranges was discarded; more habitable quarters in trenches and more protection against high explosive shells had to be provided, the depth of positions had to be increased, while concealment and camouflage had become more important. Tanks and gas warfare were then introduced and by 1917 and 1918 further changes became necessary, the most important of which were: Further increase in the depth of positions; observation posts were pushed forward, in front of the main line of resistance; the defensive lines were made up of a series of strong points and machine-gun nests, very carefully concealed and camouflaged to escape detection from the enemy artillery. The rearmost line was made the strongest, and behind this line were the artillery positions, and still behind these positions was organized a second fighting zone. The depth of the position from the outpost line to the front of this second fighting zone was at least 4,500 yards.

"CELLASTIC" TIRES WITH OPEN AIR CHAMBERS.
["Cellastic"-Reifen mit offenen Luftkammern.] Dr. Server

Description of a recent invention that combines the resiliency of the pneumatic tire with the lasting quality of the solid type. Cellastic tires are also supposed to be puncture proof and have been adopted in military vehicles by well-known firms such as Citroen-Kegresse, Bofors, Hotchkiss, Madsen and Oerlikon.

August 1937

THE BATTLE OF MOUNT HARSÁNY AT SIKLÓS, 12 AUGUST 1687.
[Die Schlacht am Berge Harsány bei Siklós am 12. August 1687.]
Major Schnagl

This battle, fought 250 years ago between the Imperial Army under the Duke of Lorraine and the Turkish Army under Suliman Pasha, resulted in the defeat of greatly superior Turkish forces, and as a result the Trans-Danubian region became permanently freed from Turkish rule and Hungary became incorporated in the Austrian empire. It was in this battle that Prince Eugene of Savoy distinguished himself as a great general.

THE EMPLOYMENT OF THE ITALIAN BATTLE RESERVES DURING THE
CAPORETTO BREAKTHROUGH, 24-27 OCTOBER 1917.
[Die Verwendung der italienischen Schlachtreserven während des
Durchbruches von Karfreit (24. bis 27. Oktober 1917).] Major
Heydendorff

After the battle of the Isonzo, 11 September 1917, the Italian high command started preparations for a fresh attack. These plans were abandoned later on, when Cadorna decided upon a "defense to the very last." On 24 October, the Germans launched their attack against the Italian Second Army (Capello), and during the first three days, 265 out of 271 Italian reserve battalions had been thrown into the battle. On the 25th, Capello, realizing that his army was threatened with complete disaster, proposed an immediate retirement to the Tagliamento, but was overruled by Cadorna.

The author believes that Cadorna's decision was correct, for while the Second Army was destroyed, it delayed the Germans long enough to permit

the escape of the Third Army to the south, where it established a strong defensive line behind the Piave River.

CONSTRUCTION OF THE GRÖDNER RAILWAY, 1915-1916.

[Der Bau der Grödnerbahn 1915-1916.] Colonel Khu

An account, accompanied by a sketch and photographs, of the construction of this railway along the Grödner valley in the Tyrol. It is over 31 miles long, with numerous viaducts and several tunnels; 800 carpenters, 800 miners and 5,000 Russian prisoners were employed in its construction and the entire railway was completed in four months.

PHYSICAL ASPECTS OF THE PARACHUTE.

[Physikalische Betrachtungen über den Fallschirm.] Major Gratzky

Every parachutist should understand the theory of the parachute. Major Gratzky explains it by means of diagrams, and arrives at the following conclusions:

(1) It is dangerous to jump from an airplane travelling at a speed greater than 155 miles per hour with a parachute that opens automatically, because the strain is greater than the human body can stand with safety.

(2) In general, the speed of a falling parachute varies inversely with its bearing surface, but if the area is excessive, the parachute loses its carrying capacity.

CHEMICAL FIRE EXTINGUISHERS.

[Chemische Feuerlöscher.] Major Hirsch

Chemical extinguishers are very valuable, particularly due to the fact that small electron-thermite bombs dropped in large quantities, will start fires that cannot be extinguished with water. The author discusses the various types of fire extinguishers and concludes that the foam-forming or spumate type of extinguisher is the most effective.

THE SPANISH CIVIL WAR.

[Der Bürgerkrieg in Spanien.] General Wiesinger

An account of the operations on the Basque Front up to July 1937.

September 1937

KRASNIK — LUBLIN, 1914. Major General Steinitz

An account of the operations of the Austro-Hungarian First Army, under General Dankl, during August and September 1914, including the battles of Krasnik and Lublin, north of Przemyśl. The First Army on the left flank of the Austro-Hungarian forces was opposed by the Russian Fourth Army. The Russians broke through the gap between the Austro-Hungarian First and Fourth Armies, but in the author's opinion, the results might have been different had General Dankl been permitted to press the attack earlier, instead of having to conform to the slower moving armies on his right.

THE TURUDIJA BATTALION IN THE SIXTH BATTLE OF THE ISONZO.

[Das Bataillon Turudija in der 6. Isonzoschlacht.] Colonel v. Hubka

An account of the battle of this battalion at Mount Sabotino, 7-8 August 1916, where, after a gallant fight it was surrounded by the enemy and practically all survivors captured.

AIR TRANSPORT.

[Der Lufttransport.] Lieutenant Hackl

While there were some instances during the World War of the employment of air transportation, the Italo-Abyssinian War was the first case in which the transport of troops and supplies by air was undertaken on a large scale. The Italians had undisputed control of the air. Lieutenant Hackl believes that air transport may be used in future wars to carry troops, landing them either by the airplane itself or dropped with parachutes; to carry sick and wounded, in which case airplane landings are necessary; and to carry supplies which may be dropped to troops on the ground in various ways.

THE EMPIRE CONFERENCE.

[Die Empire-Konferenz.] Captain Sokol

An account of the British Empire Conference, London, June 1937.

SUGGESTIONS ON FOOD CONTROL IN MAKING PREPARATIONS FOR WAR.
[Gedanken zur ernährungswirtschaftlichen Kriegsvorbereitung.]

H.R. von Steinitz

The writer presents a plan for the peace-time organization that will solve the food problem for Austria in case of war. Such an organization seems necessary remembering that the collapse of the Austro-Hungarian monarchy in the World War was mainly due to shortage of food. It is interesting to note that the sections of Austria that suffered most from hunger were its most productive regions, although they were in the hands of the Central Powers and their resources could have been fully exploited.

MILITAR-WOCHENBLATT (Germany)

By Major E.M. Benitez, Coast Artillery Corps

30 July 1937

THE BATTLE OF CAPORETTO. FRENCH COMMENTS.

[Die Schlacht von Caporetto in französischer Betrachtung.] Captain Meltzer

Colonel Conquet, French Army, in his book, "La bataille de Caporetto," discusses the practical value of Italy's entry into the World War, and enumerates the causes of the Italian defeat at Caporetto as follows:

- (1) An over-extended front which prevented the Italians from having available large reserves to be used in case of an emergency.
- (2) The German plan which, although possessing limited means, employed all available forces at the decisive point and secured surprise.
- (3) The Italian high command had no knowledge whatsoever of the selected place of the German offensive and as a result was unable to utilize its reserves.
- (4) The order to retreat was given too late by the Italian high command.
- (5) Poor use of the artillery by the Italians.
- (6) Wrong use of reserves by the Italians.

A detailed study of the tactics employed by both adversaries at Caporetto shows that the lessons drawn as a result of that battle are, as far as mountain warfare is concerned, still sound. The tactics and conduct of operations by the German high command deserve approval, while on the other hand, General Cadorna's conduct of the campaign is open to criticism.

The morale and organization of the Italian forces may be compared to that of the Prussian troops after the defeats at Jena and Auerstadt.

TWELVE WAR COMMANDMENTS OF A SOLDIER IN THE FIELD.
[Zwölf Kriegslehren des Soldaten.]

A sketchy article recommended for use as an instructor's guide concerning the principles that must be inculcated in a soldier to strengthen his morale.

EMPLOYMENT OF MOTORIZED MACHINE GUNS.
[Gedanken über die Führungstechnik motorisierter MG.-Einheiten.]
(Conclusion) Major Ponath

A discussion of the organization and employment in combat of motorized machine guns, illustrated by a tactical problem.

THE SPANISH WAR.
[Vom spanischen Krieg.] Colonel v.Xylander

The insurgent losses in the siege and capture of Bilbao, according to Colonel v.Xylander, were only 569 dead and 1,897 wounded. The tactics used by the Government forces in order to divert the enemy's attention from their real objective, as well as the reasons for the delays in the final attack against Santander are analyzed. The Government forces with a total force of from 500,000 to 600,000 men, could not prevent the fall of Bilbao, because all the steps taken to help the besieged city were undertaken too late.

6 August 1937

STRATEGICAL AND TACTICAL SURPRISES.
[Operative und taktische Überraschungen.] General Wetzell

The author illustrates his statements with examples from the World War. With reference to the German offensive at Caporetto, he says that "surprise as well as superior leadership resulted in the almost complete paralyzation of all the Italian commands." In General Wetzell's opinion, two elements intervene in the surprise: the military and the psychological.

After analyzing the attitude of the Italian Generalissimo with reference to the two elements mentioned above, the author arrives at the conclusion that the psychological depression in a command that is expecting an immediate attack by the enemy is the most dangerous element of the surprise. Once the adversary loses his morale, he also loses his initiative of action, because he has already lost his freedom of thought. In short, it may be said that surprise may be obtained, even if the enemy has anticipated the opponent's intentions. What seems more apparent than anything else in the surprise element in war is the psychological depression that precedes every important event; the extent of this depression remains unknown, because it depends upon the type of command and upon the character of the troops. Based upon the lessons of the World War, the first objectives to be obtained are strategical and tactical surprise — strategy preceding tactics. The best known examples illustrating the effect of morale, both on the German and Allied sides, are the German attacks in the Somme and the Chemin des Dames, in 1918.

MOUNTAIN WARFARE AND MOUNTAIN ARTILLERY.
[Gebirgskrieg und Gebirgsartillerie.] Lieut.Colonel Butz

After some general remarks on tactics in mountain warfare, the author describes in detail the mission and tactics of artillery in this type of operations.

OBSERVATION AVIATION IN FRANCE.

[Die Beobachtungsflegerei in Frankreich.] Colonel Nagel

A description of the organization, missions and training of observation aviation in the French Army.

13 August 1937

CONTENTS OF THE "INSTRUCTIONS ON THE TACTICAL EMPLOYMENT OF LARGE UNITS," 1937.

[Was bringt die "Instruction sur l'emploi tactique des grandes unites" von 1937?]

COMBATS IN THE NEIGHBORHOOD OF FORTIFICATIONS IN THE RUSSIAN FRONT DURING THE WORLD WAR AND LESSONS TO BE LEARNED THEREFROM.

[Der Kampf um die Festungen auf dem russischen Weltkriegsschauplatz und seine Lehren.] Major General Klingbeil

WHAT SHOULD BE EXPECTED OF TANKS.

[Panzerhoffnungen.] Lieut.Colonel Däniker

NEW AMERICAN BOMBING PLANES.

[Neue amerikanische Bombenflugzeuge.]

THE SPANISH WAR.

[Vom spanischen Krieg.] Colonel v.Xylander

CARE OF HORSES.

["Pferdeschonung."] Lieut.General Marx

20 August 1937

THE BEGINNING OF THE WAR BETWEEN AUSTRO-HUNGARY AND RUSSIA AND THE ATTACK AGAINST SIEDLEC.

[Osterreich-Ungarns Kriegsbeginn gegen Ruszland und das Siedleproblem.] Colonel Pitreich

SCIENTIFIC STUDY OF OFFICERS.

[Wissenschaftliche Studien der Offiziere.] Colonel Mantey

WEIGHT OF ARMS.

[Waffengewicht und Operationstempo.] Major Buhle

THE CONFLICT IN THE FAR EAST.

[Vom Konflikt im Fernen Osten.] (I) Colonel v.Xylander

WAR, STRATEGY AND MILITARY POLICY.

[Totaler Krieg, Strategie und Wehrpolitik.] Captain Ruprecht

OPERATIONS IN HIGH MOUNTAINS, ACCORDING TO YUGOSLAVIAN TACTICS.

[Operationen im Hochgebirge in jugoslawischer Auffassung.] Major Gaul

TACTICAL PROBLEM NO 19.

[Truppenführung. Aufgabe 19.]

27 August 1937

EFFECTIVENESS AND MOBILITY IN MOUNTAIN WARFARE.

[Wirkung und Beweglichkeit im Gebirgskriege.] Lieut.Colonel Butz

An interesting study of mobility, range of guns, ammunition supply and topography illustrated with examples from the World War. It is a question whether or not it would be wise to have pieces of larger caliber than the 105-mm gun and the Krupp L/12. An analysis of the means of transportation, ranges, ammunition supply, loads of motor vehicles, effects of the noises of motors in mountains and valleys, leads to the conclusion that mobility and effectiveness are on the same level and are equally important.

AERIAL COMBAT BETWEEN PURSUIT AND BOMBERS.

[Luftkampf zwischen Jagdfliegern und Bombern.] Colonel Nagel

Is the pursuit superior to the bomber in aerial combat? This question continues to be debated among the leading air powers. Those who relegate the pursuit to second place contend that this type of plane has little chance of success in attacking bombers capable of all-around fire and which can fire concentrations by mutual support when flying in close formation. The speed of the modern bomber even surpasses that of the pursuit and while it is true that they present a larger target, yet they can expose themselves to a large number of hits without being put out of action. On the other hand, the other school of thought claims that pursuit armed with cannon is fatal to bombers flying in close formation and that the efficiency of the weapons carried by the bomber will be considerably limited by the great angular velocity and the brief moment available for firing on the pursuit, which approaches and passes the bombers at a tremendous rate of speed (in diving, the angular velocity is 187 degrees per second).

3 September 1937

THE AIR CORPS WITHIN THE ORGANIZATION OF THE NATIONAL DEFENSE.

[Der Flieger im Gefüge der Wehrmacht.] General v.Eimannsberger

The World War suddenly raised the air force from an insignificant beginning and a doubtful use to a commanding position. In the final year of the Great War, the number of airplanes possessed by the various armies ran into the thousands; the aviator became the eyes of the army and assisted the land forces by attack against troops on the ground and by bombing operations.

After the World War there was no need for large air forces and everything stagnated. Then came Douhet with his theory; he told the world that aviation was not an auxiliary weapon or merely a support for others, but an arm in itself capable of reducing all other arms to impotence. Military literature has rarely approved or rejected in its entirety Douhet's doctrines. General Eimannsberger arrives at certain conclusions, which may be summarized as follows:

(1) Aviation has reached a stage where it is far too powerful to be employed in fighting a separate war in the air.

(2) Even though the general plan of operations may initially provide for the strategic employment of the air force according to the Douhet doctrine, the army and navy must not be stripped of the entire aviation, for that would mean to deprive them of their eyes and render them incapable of action.

(3) Nations that are not certain as to whether or not their next war will be on land or on water should, preferably, have a separate air force, and vice versa, those nations whose army will play the most important part in the event of war should make the air force a part of the army.

(4) The development of the air force becomes highly difficult if its mission is to conduct a powerful, though non-decisive operation, from which neither the army nor navy will be benefitted in proportion to the effort made.

THE CONDUCT AND TECHNIQUE OF WAR, PAST AND PRESENT.
[Kriegführung und Technik, einst und heute.] Lieutenant Schnez

GERMAN MILITARY LITERATURE, PAST AND PRESENT.
[Das deutsche Wehrschiffthum einst und jetzt.] Lieut. General Marx

THE CONFLICT IN THE FAR EAST.
[Vom Konflikt im Fernen Osten.] (II) Colonel v. Xylander

The second of a series of articles (see 20 August issue) in which Colonel v. Xylander reviews the military operations which are now being carried on in China, with a discussion of the various treaties that constitute the basis for the presence of Japanese forces in China. (To be continued in subsequent issues.)

10 September 1937

THOUGHTS ON ORGANIZATION, PEACE-TIME TRAINING AND EMPLOYMENT OF MODERN AIR FORCES.
[Gedanken über Gliederung, Friedensausbildung und Einsatz neuerzeitlicher Luftstreitkräfte.] Lieut. Colonel Braun

General Herr has said, referring to the artillery aviators: "Only by subordinating the artillery aviators to the artillery, will it be possible to train them according to the desires of the artillery. This close cooperation might be termed 'esprit de corps'." The Air Ministry must, of course, maintain the technical control of these escadrilles, for the purposes of supply, maintenance of the equipment and replacement of pilots. General Marx, formerly Artillery Inspector, is also of the same opinion.

There are today three independent branches in the armed forces: The army, the navy and the air corps, of which the most important is the army. Aviation in Spain has not been able to capture Madrid. The conclusion drawn is that aviation has no right to exist as an independent force; it is merely a strong branch of the armed forces of the nation.

THE REVOLT IN ARABIA IN 1917-18 AND ITS EFFECT ON THE TURKISH CAMPAIGN IN PALESTINE.

[Aus grosser Zeit vor zwanzig Jahren. Die arabische Aufstandsbewegung 1917/18 und ihre Einwirkung auf den türkischen Palästina-Feldzug.] Major General Platz

MARKSMANSHIP TRAINING.
[Schieszausbildung.] Major Hoppe

Periodical Articles—Catalog

THE GRAND ITALIAN MANEUVERS IN SICILY.
[Die groszen italienischen Manöver auf Sizilien.] Lieutenant Himpe

COAST DEFENSE TRAINING EXERCISES IN GREAT BRITAIN IN JULY 1937.
[Die britische Küstenverteidigungsübung im Juli 1937.] Colonel v.Xylander

TRAINING OF JUNIOR OFFICERS IN AN INFANTRY REGIMENT.
[Unterführerausbildung bei einem Infanterie-regiment.] Lieutenant v.Hammerstein

17 September 1937

STATESMAN AND MARSHAL.
[Staatsmann und Feldherr.] Major General Feeser

THE SPANISH WAR.
[Vom spanischen Krieg.] Colonel v.Xylander

CZECHOSLOVAKIAN IDEAS ON FRONTAGES AND EMPLOYMENT OF TROOPS IN THE DEFENSE.
[Tschechische Unsichten über Frontbreiten und Kräfteinsatz in der Verteidigung.]

24 September 1937

COMMON OBJECTIVES OF ALLIED ARMIES REQUIRE COMMON PREPARATIONS FOR WAR.
[Gemeinsame Kriegsziele verbündeter Armeen erfordern gemeinsame Kriegsvorsorgen.] Field Marshal Urganski

THE GERMAN FIELD SERVICE REGULATIONS OF 1914 TESTED IN WAR.
[“Die deutschen Gefechtsvorschriften von 1914 in der Feuerprobe des Krieges.”] Lieut.General Marx

THE CONFLICT IN THE FAR EAST.
[Vom Konflikt im Fernen Osten.] (III) Colonel v.Xylander

2 October 1937

SUPPLY OF MOTORIZED AND MECHANIZED UNITS.
[Versorgung motorisierter und mechanisierter Verbände.] Major General Dihle

The foreign press seems to be very much interested in the formations, composition, and tactical employment of motorized units. It is argued that they can be employed just like any other unit; similarly, their march formations and security against air attacks are widely discussed. All these questions are analyzed without considering that they are possible only if

these units remain mobile at any time. On the other hand, very little is said as to how this mobility will be maintained.

The handling of troops is compared sometimes to a game of chess. This comparison, however, is erroneous, because troops possess life, and bravery in combat is not a constant; moreover, communications with the homeland are necessary to obtain the necessary supplies. Failure to recognize this fact may bring disastrous consequences, as illustrated in Napoleon's Campaign of 1812 in Russia.

Supplies and forage were formerly bought when the theatre of operations was at home or were requisitioned if in enemy territory. The amounts could be calculated, based upon the time-schedule of the columns, because the length of the marches depended upon the capabilities of the men and the horses; fundamental changes have taken place due to motor vehicles, and now the length of marches is determined by the amount of fuel available. A man is not a machine; he gets tired after a certain length of time and then his efficiency becomes practically nil. It is impossible, however, to determine the capacity of motor vehicles, because when the driver becomes tired he is merely replaced, and even then the exact time cannot be correctly determined, because it is more difficult to drive a heavy truck than a touring car, or even to drive a truck alone than in convoy formation.

It can safely be stated that a motorized unit can cover daily a distance of from four to six times that of foot troops, provided, of course, that there are no interruptions either from land or from the air. It will be impossible to obtain fuel supplies in war as easily as in peace-time and the supply system will be handicapped either because slower and heavier vehicles will have to be used, certain roads have to be followed, or because of delays due to heavy traffic and crossing of roads. In the latter case it will be necessary to have strict traffic control.

The fuel supply distribution will have to be made during rest periods. The fuel consumption also varies according to the type of vehicle. It is a good policy to group vehicles of the same type that will require the same amount of fuel, at the same speed, for the same distance. During the march, use will be made of halts to refuel, and for this reason supply tanks must accompany the convoys, but particular care must be taken to camouflage or protect them from air attacks. The refuelling of vehicles in battle is very difficult; however, many officers believe that it can be done.

8 October 1937

MUST RECONNAISSANCE PATROLS FIGHT? [Aufklärung mit oder ohne Kampf?]

As a rule, a reconnaissance patrol should avoid a fight with the enemy forces. There are cases when the mission involves fighting, in addition to reconnaissance, and in this case combat patrols should be provided with light machine guns. Patrols of reconnaissance detachments are provided with light machine guns; in addition, these patrols are supported by their respective reconnaissance groups. The reconnaissance group has the difficult task of maintaining reconnaissance between the main body of the reconnaissance force and that of the troops in march or at rest, and this is a hard task because it is practically impossible to prevent enemy infiltrations in this large space. Cavalry patrols at present do not possess enough fire-power and should be provided with light machine guns; the weight is not so great and the advantages obtained more than compensate any of the disadvantages.

15 October 1937

TACTICAL AND STRATEGICAL IMPORTANCE OF ANTI-AIRCRAFT ARTILLERY.

[Die taktische und operative Bedeutung der Flakartillerie.] Major Pickert

It is believed probable that the first blow of the enemy's aviation will be directed against the opponent's air forces and air bases, in order to obtain more freedom of action for bombardment of subsequent objectives, such as industrial centers and means of communications. Antiaircraft artillery, in cooperation with friendly pursuit, must furnish the protection required, so that friendly forces may refuel and repair their machines at ease so as to be able to start on offensive missions. Failure to provide protection would mean that friendly air bases would be continually exposed to enemy attacks, and the losses and delays may be such that the offensive power of the friendly air forces could never be exactly known. Antiaircraft artillery must also protect war factories so that they may continue turning out materials that are necessary for the prosecution of the war. This mission is of tremendous importance, if not decisive, and antiaircraft artillery is the nucleus of this defense system. It is true that it is practically impossible to prevent air attacks altogether; however, these attacks can be made so costly that their repetition will not be considered worth while.

Within the army, the mission of antiaircraft artillery is also of the utmost importance. The enemy, undoubtedly, will try to prevent the advance of the army by bombing roads and railways, and the protection of these vital means of communication as well as the prevention of hostile reconnaissance, will be a function of the antiaircraft artillery.

INDUSTRIAL MOBILIZATION.

[Die Mobilmachung der Wirtschaft.] Dr. Leonhardt

General Herr, French Army, the defender of Verdun in 1916, stated in 1923 that modern war was a "war of factories."

The first industrial mobilization in history took place during the World War, 1914-1918, and it became an indispensable factor in all strategical and tactical operations. The German industrial mobilization was a makeshift, no provisions or preparations having been made in peace time. Germany was confident that the current output of factories that were working for the nation and other establishments that were turning out war materials as well as her large reserves, would be ample for her war requirements. We know today that the expenditures and depreciation were far beyond expectations. In the haste to reorganize industry, many mistakes were made, with the result that in some cases the profits were exorbitant, while in other cases strikes in munition factories caused serious handicaps.

General Falkenhayn in his book, "The Supreme Command from 1914 to 1916," says: "Only a person in a position of responsibility in the German General Staff in the winter of 1914-1915, when every projectile in the Western Front had to be counted, when the delay of a munitions train, a derailment, or any other similar accident threatened to leave undefended vital parts of the front, can realize the difficulties that we had to overcome."

The author cites several qualified authorities, such as Ludendorff, Rauscher, Dr. Mayer and Schmidt, to uphold his contentions and then quotes the German military decree of 21 May 1935, which, in part, reads as follows: "In time of war, besides the military duty, every man and woman will be required to give its services to the Fatherland." These lines, according to Dr. Leonhardt, sum up the fundamental principles of industrial mobilization.

22 October 1937

GERMAN AND FRENCH TACTICAL PRINCIPLES FOR THE EMPLOYMENT OF TANKS.

[Deutsche und französische Grundsätze für den Kampfwageneinsatz.] Lieut. Colonel Braun

OBJECTIVES OF A TANK ATTACK

The German Regulations state: "Tanks and infantry will always have, if at all possible, the same objective: the enemy artillery."

The French Regulations state, more or less: "Tanks will either accompany the infantry, or else will precede the advance by bounds of about 1,000 yards, from one intermediate objective to another, or do both." A rapid penetration in one bound to the enemy artillery positions, at a distance of from two and a half to four miles beyond the front line, is the exception, according to the French Regulations. This will only be undertaken against a demoralized enemy, in pursuit or in a delaying action.

Herein lies the fundamental difference between these two schools of thought. Above all, tanks must assist the infantry, but how are they going to do it? By neutralizing the enemy's artillery, or by destroying the enemy machine-gun nests in front of the hostile artillery? The author, citing his own experiences during the World War, states that when tanks were stopped in that war it was, as a rule, by machine-gun fire and seldom by artillery fire, machine guns always striking in flank. The Spanish War furnishes the same experience.

While it cannot be positively stated that the following modified French plan is the best scheme, it is believed to have its merits: seven minutes of advance by bounds from an intermediate objective to the next one, then a seventy-minute halt until the infantry catches up. The German doctrine of a deep advance clear to the enemy artillery positions, is hardly possible except in the following cases: (1) When there is available another tank echelon to destroy the heavy machine-gun nests; (2) when the infantry has already broken through. Moreover, the exact locations of the hostile artillery are not known. As a general rule, tanks occupy their positions during the night and launch their attack at daybreak the following day. The aviator or the reconnaissance detachments may have located the artillery positions the day before, but as it was demonstrated during the World War, the probabilities are that the artillery will be occupying different positions on the following day when the attack is launched.

ARTILLERY COOPERATION

The French divide their artillery into three groups as follows: (1) Group for infantry and tank support; (2) counterbattery; (3) harassing fires. According to the author, the infantry can only gain decisive results when supported by tanks.

THE FRENCH MAIN LINE OF RESISTANCE

This line is located ahead of friendly artillery and its purpose is: (1) To stop the enemy advance; (2) to protect the artillery; and (3) to serve as a starting point to launch counterattacks. An excellent organization.

SPEED

According to the German Regulations, speed is the tank's main asset, while the French believe that efficiency is the tank's best weapon. Both are right. The important thing, however, is that the tanks do not acquire the habit of running wild against far-distant objectives in the horizon, while the infantry is bleeding to death before hostile machine-gun nests.

TANKS

The German Regulations favor the employment of tanks in the meeting engagement, while the French Regulations reject it, particularly at the beginning of the war. The author prefers the German system, provided that proper reconnaissance has been made, so that tanks may not run up against unknown obstacles that may cause the failure of their mission, in spite of their much advertised ability to "swim, climb, jump, and demolish."

MILITARY ENGINEER

January-February 1938

- FORMATION AND CONTROL OF MOTOR COLUMNS. Major Barker
THE BATTLE OF GUADALAJARA. Lieut.Colonel de Watteville, British
Army
STRATEGIC MINERAL SUPPLIES. 12. NITROGEN. Major Roush
PORTABLE MILITARY BRIDGES. Sverdrup
THE BATTLE OF CTESIPHON AND THE RETREAT TO KUT. Major Rey-
nolds, British Army
-

MILITARY SURGEON

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- DELEGATE-AT-LARGE: BUCHAREST — GENEVA — GÜTTINGEN. Colonel
Jones

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- COMMUNICATIONS IN THE MEDICAL REGIMENT. Lieut.Colonel Davenport
-

NAVAL INSTITUTE PROCEEDINGS

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- SEA POWER AND WORLD PEACE. Lieut.Commander Brownson
WAR AND PEACE. Lieut.Commander Krause
IT'S A LONG LONG TRAIL TO HAWAII. Commander Wiley
SMALL ARMS AND THE NAVY. Martin

January 1938

- KNOWN SUNK — GERMAN SUBMARINE WAR LOSSES, 1914-1918. Grant
THE CAPTURE OF LOUISBOURG IN 1758. A JOINT MILITARY AND NAVAL
OPERATION. Captain Shafroth

February 1938

- THE OBJECTIVE IN AERIAL WARFARE. Lieut.Commander Schoeffel
THE CAPTURE OF QUEBEC IN 1759. A JOINT MILITARY AND NAVAL OPER-
ATION. Captain Shafroth
AMPHIBIOUS INFANTRY. A FLEET ON LAKE LANAO. Colonel Hitt
-

PIONIERS (Germany)

By Major E.M. Benitez, Coast Artillery Corps

August 1937

- ENGINEERS IN LARGE UNITS.
[Pioniere im Rahmen der grossen Einheiten.] Colonel Dittmar

At the outbreak of the World War, each division had only one company
of engineers; the army had one or two engineer regiments attached, primarily

for siege operations. In January 1917, a reorganization took place and one engineer battalion of two companies was assigned to each division; later on, the strength of engineer troops with the army was increased, and still later on, all bridge trains were combined as army troops.

The present French division has one engineer battalion of two companies plus a park company; it has no bridging material other than foot bridges. The American division has a regiment of six companies. Engineer troops for special tasks should, in the author's opinion, be attached to the army, and an army of three corps should have at least a regiment composed of two motorized engineer battalions and one landwehr battalion. General headquarters should have one engineer regiment of two battalions for each army.

ENGINEERS IN ATTACK.

[Pioniere im Angriff.] Major Ahlfen

In the attack, engineers should be used to assist the infantry by removing obstacles and in the capture of fortified points; in the capture of villages due to their knowledge in the use of explosives, and in combat in woods they can best be utilized to clear the way for the infantry and to construct paths for the horse artillery. In river crossings engineers are, of course, employed in the operations where their technical knowledge is used to greatest advantage.

TASKS FOR ENGINEER LEADERS AND TROOPS.

[Aufgaben für Pionierführer und Truppe.] Lieutenant General von Mertens

In practice, engineers have a large number of problems to solve, such as road construction, field fortifications and obstacles, employment of engineers in attack and their employment in river crossings. General von Mertens presents a large number of problems, such as the following:

Problem 1: How can engineers assist the infantry to cross an unfordable river, by means of two ropes stretched tightly across?

Problem 2: How would you cross a river packed with ice floes?

DESIGN OF ANTITANK GUN POSITIONS.

[Ausbau von Stellungen zur Panzerabwehr.] General Burstyn

The main weapon for antitank defense today is the antitank gun of 37-mm-47-mm caliber, with a maximum weight of 200 pounds; the 20-mm weighing about 25 pounds is an excellent weapon for the infantry. In laying out an antitank gun position, it must be borne in mind that the tank is far more vulnerable from the flank than from the front, because the flank offers a larger surface as a target and, in addition, its armor is often thinner than that in front and is vertical to the line of fire. Every effort should be made to get enemy tanks to expose their flanks to antitank fire.

The author expresses his ideas on the construction of trenches, illustrating them with two type plans. Zig-zag trenches should be built rather shallow so as to encourage tanks to cross them, with the gun emplacements so laid out as to enable the gun to hit the tanks in flank and also so that a tank put out of action will not provide cover for the tanks beyond it. These ideas apply only to antitank defense against light and medium tanks and would not be effective against very heavy tanks weighing from 70 to 90 tons.

EQUIPMENT OF THE FORTIFICATIONS OF METZ IN 1914.

[Die fortifikatorische Armierung der Festung Metz 1914.] Colonel Heye

An account of the work carried out to bring the Metz fortifications up to war standard during the early period of the World War. Many difficulties had to be overcome, such as lack of proper equipment and inexperience of personnel. Forest land was unnecessarily cleared of timber, and as a result the forts showed up clearly. Sheds and buildings that would have assisted in camouflaging the forts were demolished. In seven weeks, however, the fortifications had been strengthened by the erection of wire entanglements, concrete construction and other defensive works, so that at the end of this period the forts were in a reasonable state of preparedness; fortunately, however, the French did not make any attacks, although they might have well done so. The country at present is better organized, and a similar condition will not exist in a future war, although it is admitted that the danger of an attack by a hostile air force is considerably greater.

QUARTERMASTER REVIEW

November-December 1937

SOUTH TO ZAMBOANGA AND JOLO. Captain Avera

WHY NOT PROPER MOTOR EQUIPMENT FOR THE U.S. ARMY? Lieut. Colonel Robinson

TACTICS AND STRATEGY. DOES THE TACTICAL DOCTRINE HAVE AN INFLUENCE UPON STRATEGY? IN THIS STUDY OF THE KARFREIT (CAPORETTO) OFFENSIVE IN 1917 THE UNDENIABLE RELATION OF THESE MILITARY PRECEPTS IS SHOWN CLEARLY AND CONCISELY. Fletcher

January-February 1938

A SELF-SERVICE COMMISSARY. Captain Dowdall

WHY NOT PROPER MOTOR EQUIPMENT FOR THE U.S. ARMY? Lieut. Colonel Robinson

RECRUITING NEWS

January 1938

PROPOSED INFANTRY "STREAMLINED" DIVISION. TWO-MONTH EXPERIMENTAL TESTS CONDUCTED AT FORT SAM HOUSTON. (I) Herbert E. Smith

February 1938

THE PROPOSED INFANTRY "STREAMLINED" DIVISION. TWO-MONTH EXPERIMENTAL TESTS CONDUCTED AT FORT SAM HOUSTON. (II) Herbert E. Smith

RESERVE OFFICER

December 1937

"HISTORY SAYS WE'LL FIGHT, SO WHAT." Lieut. Commander Harrison, U.S.N.R.

SELECTIVE SERVICE AND VOLUNTEERS. Colonel Jarman
OBSERVATIONS IN SPAIN. Major Fleming

January 1938

BEHIND THE SPANISH NEWS FRONT. Major Fleming

February 1938

BILLIONS FOR DEFENSE
EL ESPIRITU DE CASTILLA. Major Fleming

REVUE DE L'ARMÉE DE L'AIR (France)

By Colonel L.H. Brereton, Air Corps

August 1937

COMPROMISE, TECHNICAL AND MILITARY, AND RADICAL SOLUTIONS.*
[Le compromis et les solutions extrêmes.] Chief Engineer Rougeron

A study of the effects of the compromise between technical and military considerations. Trends of naval construction illustrate faulty application of the factors affecting compromise between the extremes of technical and military requirements. The radical solution by concentration on the most desirable quality at the expense of others has resulted in definite military superiority, when properly timed.

The author discusses the analogous solutions of favoring one characteristic at the expense of others in the development of bombing aircraft.

The classification of the military power of the battleship into the basic variable factors of armament, armor and speed, do not apply to aircraft without correction and additions. Armament, for example, is both offensive and defensive — with completely different roles. To speed must be added military ceiling and climbing speed which, combined with horizontal speed, allows the enemy to be closed with or escape.

For bombers, the Douhet solution — large armament, both offensive and defensive, at the expense of speed — is not defensible today. Speed has taken a more and more preponderant role in air combat, and the difficulty of defensive fires at such speeds has correspondingly increased.

The present tendency for bombers is to emphasize speed and offensive armament and minimize defensive armament.

FLIGHT OFFICERS FOR FLYING UNITS.

[L'encadrement des formations volantes.] Lieut.Colonel Césari

Based on the logical argument that commanders of the Air Army, in all echelons, must be pilots, the author proposes certain procedure and qualifications to determine and maintain command eligibility.

SECOND AIR ROUTE BETWEEN MOROCCO AND TAOUDENI.

[La deuxième liaison aérienne Maroc-A.O.F. à Taoudeni.]

September 1937

MILITARY APPLICATION OF THE FAUVEL "FLYING WING."

[Possibilités militaires de la formule sans-queue Fauvel.] Captain Fauvel

*NOTE: This is a complete study of an article by the same author published in the "Revue Maritime," March 1937, and also presented to the "Association Technique Maritime et Aéronautique."

Periodical Articles—Catalog

A discussion, including outline sketches, of the Fauvel tailless airplane, adapted for: 3-place combat or reconnaissance, bimotor bomber and pursuit. Single seater pursuit.

EXTENSION OF THE COMBAT ZONE AND ITS RESULTS.

[L'extension de la zone de manoeuvre et ses conséquences.] Com-mandant Albord

STUDY ON ANTIAIRCRAFT DEFENSE.

[Etude sur la défense anti-aérienne.] V. Feldzer

Discussion of equipment and methods of tracking aircraft.

NATIONALIZATION OF THE AVIATION INDUSTRY.

[La nationalisation de l'industrie aéronautique.]

Address by M. Pierre Cot, Air Minister, on 20 July 1937.

HAS STRATEGY CHANGED AS A RESULT OF THE WORLD WAR?

[Les formes de la stratégie ont-elles changé d'après l'expérience de la guerre mondiale?] Field Marshal Werth, Hungarian Army

(See abstract, page 104)

October 1937

MASTERY OF INSTRUMENT FLYING.

[La maîtrise du p.s.v.] (I) Jean Pointis

The first of a series of articles dealing with instruction in blind flying. The first chapter deals with the necessity of perfecting normal flying technique by visual means before further instruction in instrument work. Interesting and instructive for pilots of all grades.

AIR ATTACK OF A CITY.

[L'attaque aérienne d'un grand centre.] Major Etienne (Res.)

The author is of the opinion that unrestricted bombing of cities is not justified from the military viewpoint, and in addition, incurs grave danger from the reaction of the civil population of the enemy country and from neutrals.

Military objectives in the suburbs of cities will certainly be attacked, but the areas where they are located should be clearly defined. The preliminary step towards destruction of the military objectives themselves should be the paralysis of the communications of the metropolitan area around the center of the city.

REVUE D'ARTILLERIE (France)

By Major B.R. Legge, Infantry

July 1937

THE SEDENTARY CANNONEERS OF LILLE.

[Les canonniers sédentaires de Lille.] Captain Duvignac

An interesting and historic organization of French artillery. Established in May 1483 by the magistrate of Lille as an organization of cannoneers and musketeers, with an effective strength of 80, known as the brotherhood of Saint Barbe. They were entitled to recruit among all worthy persons of standing in the community, provided the candidates were not previously pledged to join either the archers or crossbowmen.

Each Sunday a dozen or more were obligated to meet in the garden near the Fives gate. They were to be paid by the city ten large Flanders coins and ten lots of wine of six patars provided there were at least six cannoneers present and provided that each fire at least 3 rounds. One sees that from their origin, wine entered into the tradition of the artilleryman.

The rights and privileges of the brotherhood of Saint Barbe were confirmed by Philippe II, Count of Flanders in 1497, by letters potent, which gave the brotherhood the privilege of taking their arms and equipment with them wherever they went and provided further that when firing in their garden after having cried: "stand aside," if they had the misfortune to wound or kill a passerby they would not be fined or held responsible.

In 1511 when the soldiers of Henry VIII of England approached the city, their strength was raised to 80 and later in 1570 to 100.

They devoted themselves to the defense of Lille, kept watch at the gates during periods of alert and took a strong part in case of trouble. They likewise participated in public fetes and parades and fired "salvos of rejoicing."

To recompense their services they were granted in 1625, in addition to the regular Sunday issue of six lots of wine, four more lots of six patars each.

During the 3 weeks siege of Lille by the French in 1667, "the sedentary cannoneers" gallantly disposed of 46,000 pounds of powder in launching projectiles at the French. Several of their number were killed and 36 were wounded.

Then Lille became a French city, but the sedentary cannoneers continued to exist.

The brotherhood was administered by a high constable and sub-constables. The winner of the gunnery competition each year was called the "king of good right." Other officers were color bearer, drummers, fife players and a cannoneer's clown, a jester charged with distracting his conferees and amusing the public.

Tradition continued. In 1748, upon initiation of a new high constable, William Durand, they wore blue uniforms with red ornaments. There was a banquet in the large room of their home. All cannoneers were invited who had participated in the morning parade. It is noted that they were advised "not to hold indecent discourse at table nor transport from the banquet room either bottles or other things through either door or windows." A fine of 48 patars was fixed for the delinquents.

On one occasion in 1684, after a banquet following the firing of the cannon, the brotherhood dispensed 9 pounds for a lost silver fork and eleven pounds for broken window panes.

A dinner in 1760 lists: six tureens of onion soup, six platters of herring, five platters of cod, a salmon, five platters of ray, six platters of eel, five platters of pike with white sauce, one milk fed pig, roasted, five salad bowls with tartar sauce, four pounds of cheese, three pounds of butter.

Joy apparently reigned on most of these festive occasions for we find a regulation which prescribes that any cannoneer found drunk or in an ignominious condition would be punished by a fine and conducted from the house.

While passing through Lille in 1803, Napoleon interested himself in the sedentary cannoneers and reorganized them by decrees, giving them a national home and two pieces of artillery appropriately engraved.

In 1810, Napoleon again passing through Lille, decorated the commander, Captain Ovigneur, with the cross of the Legion of Honor for the entire organization.

In 1812 and 1813 they received stands of colors for gallantry in defense of the citadel. In 1813 their strength was increased to 137 men per company.

In 1815 they were raised from 2 to 4 companies and given a band.

In 1852 after having been temporarily disbanded by decree they were reconstituted into 5 companies totalling 500 men.

During the Franco-Prussian War they garrisoned Lille. Their effective strength was increased to 833.

In 1875 their equipment was modernized.

In 1896 they were reorganized and brought to a strength of 18 officers and 524 men. The age limit was fixed as follows: Field officers — 65, company officers — 60, enlisted men — 50.

In 1914 they were called to active service and furnished detachments for different forts. At the close of the war only 2 officers and 18 men remained at the home station.

After some litigation with the city of Lille over their properties and rights in which the sedentary cannoneers were supported by public opinion and backed by the sentiments of Marshal Franchet d'Esperey and other notable soldiers, the organization was revived and its legal status reestablished.

The latest regulations governing their conduct, training, duties, etc., was published in 1936.

It is the most ancient formation of French artillery and probably in the world.

MISCELLANEOUS INFORMATION.

[Renseignements divers.]

A brief summary of certain organizations of the Austrian, Swedish, Swiss and Dutch armies.

August 1937

PASSIVE DEFENSE.

[Défense passive. L'extinction des lumières.] Chef d'escadron Lucas

Passive defensive measures against air attack. Deals principally with control measures necessary in cities in proximity to the front or which would be objectives of enemy bombardment. Reviews steps taken by Governor General of Paris to reduce effectiveness of German air attack. Interesting review of first German attempts to bomb Paris.

MISCELLANEOUS INFORMATION.

[Renseignements divers.]

Brief reviews of foreign developments as follows:

Yugoslavia: organization of army.

Poland: organization of munitions and arms manufacturing center.

United States: railroad artillery and coast defenses of San Francisco. 37-mm rapid fire cannon antiaircraft artillery.

Holland: 47-mm infantry cannon.

Switzerland: 20-mm cannon.

Great Britain: Light Vickers combat car, Carden Lloyd.

United States: accompanying tanks.

September 1937

THE HEAVY HOWITZER ARTILLERY OF GERMANY IN THE WAR OF 1914-18.

[A propos de l'artillerie courte puissante de l'Allemagne dans la guerre de 1914-18.] Colonel Rousseau

A brief but well documented study of the German heavy howitzer matériel at the beginning of the war, showing that the employment of concrete fortifications had led the Germans, as early as 1890, to begin experimentation with powerful calibres, which were developed rapidly as the war progressed.

The concentrated employment of this siege artillery for consecutive efforts is interestingly described. It was used first at Liege, then Namur, and Antwerp; later on the French front, in Serbia and in Russia.

Interesting statistics are given on the number of rounds of the larger calibres fired against various fortresses and the material effect, with an evaluation by the author of the moral effect on the troops garrisoning the forts.

ANGULAR SPEEDS OF PLANES IN FLIGHT PICKED UP BY SOUND DETECTORS.

[Sur les vitesses angulaires de l'avion entendu.] Lieutenant Boos

A continued article dealing with a highly technical study of planes in flight. May be of interest to antiaircraft artillery.

SIEGE AND FORTRESS ARTILLERY IN 1914.

[L'artillerie de siège et place en 1914.] Major Basset

A review of the effective strength and matériel of French artillery at the beginning of 1914, showing the static artillery defense envisaged in Plan XVII and the subsequent repercussions of the stabilized Western Front upon the use of siege and fortress artillery. This article brings out the fact that much of the previously trained artillery personnel was used in filling up machine-gun, cavalry and supply units because of the exigencies of rapidly changing situations. An interesting and instructive article.

ARTILLERY IN THE TIME OF CHARLES XII, FROM VOLTAIRE.

[L'artillerie au temps de Charles XII, d'après Voltaire.] Lieutenant Davost

A review of some of the major battles fought by Charles XII of Sweden, showing how he carried on the development of artillery of Gustavus Adolphus and used this arm most effectively in his battles against the Russians. An interesting reference is made to the use of smoke by Charles XII in screening his passage across the Dvina by burning wet mounds of straw in a favorable wind, concealing successfully his movement from the observation of the Saxons, and surprising Marshal Steinau.

MISCELLANEOUS INFORMATION.

[Renseignements divers.]

Great Britain: Reorganization of the divisions of the regular army. Organization and armament of artillery.

Lithuania: Organization of the army.

Norway: Organization of the army.

Germany: Armament.

Austria: Infantry cannon.

Sweden: Antitank 37-mm gun.

Switzerland: Antiaircraft 37-mm gun, model Soleure.

Czechoslovakia: Antiaircraft and antitank machine gun.

Austria: Preliminary military instruction of college students.

REVUE DE CAVALERIE (France)

By Major L.K. Truscott, Jr., Cavalry

July-August 1937

THOUGHTS ON THE SECURITY OF AN UNARMORED FORCE.

[Réflexions sur la sûreté d'une troupe non cuirassée.] Captain Grimaux

(See abstract, page 114)

MEANS OF REGULATING PROMOTION.

[Des moyens de régulariser l'avancement.] By X . . .

A discussion of suggested means for equalizing promotion in the French army.

MOTORCYCLE TOUR OF FRANCE.

[Le tour de France motocycliste.] Chef d'escadron de Saint-Sernin

A detailed account of the cross-country race so named, which took place between 17 April and 2 May 1937. The test comprised 14 stages, totalling 4,942 kilometers.

MEMOIRS OF LIEUTENANT COLONEL VING AT THE SAUMUR SCHOOL.

[Les souvenirs du lieutenant-colonel Ving à l'école de Saumur.]

An account of an address on the occasion of presenting the souvenirs of this officer to the school. The account details the career of this officer, killed in action 20 July 1925, after more than twenty years of active colonial service.

AUTOMOBILE CHRONICLE. HEAVY OIL AND THE CAVALRY VEHICLE.

[Chronique automobile. — L'huile lourde et le véhicule de cavalerie.]

This article is a general discussion of the advantages and disadvantages of Diesel engines, particularly with reference to cavalry vehicles. The author thinks that Diesel engines are inferior to gas engines in speed, acceleration, suppleness, silence, smoothness, starting, and manageability, but have an advantage, important in war, of being able to use all oils as well as gas without requiring a carburetor. He does not think the present stage of development justifies adoption for cavalry vehicles at this time.

September-October 1937

THE IMPERIAL CAVALRY. CHARGE AND EMPLOYMENT OF FIRE.

[La cavalerie impériale. Charge et emploi du feu.] General Boucherie

(See abstract, page 117)

STEEL.

[L'acier.] By M. Galibourg

The article describes steels, and shows how the physical and mechanical properties of steel can be infinitely varied for different purposes either by choosing at will a chemical composition of the metal, or by submitting the steel to a thermic treatment appropriate to the end desired.

The author treats the subject in an article of some length under the following headings: Definition of iron, steel, and cast iron; Composition of steels; Properties of steels; Case of special steels; Principal mechanical properties characterizing steel; Principal faults met in steels; Principal operations in treatment of steels; Principal steels used in mechanical construction.

While somewhat technical, the article is an interesting sketch of a vast subject.

THE CAVALRY AND THE EXPEDITION OF CONSTANTINE IN 1837.

[La cavalerie et l'expédition de Constantine de 1837.] Captain Sereau

This article is a narrative account of services performed by French cavalry in the colonial expedition to capture Constantine [Morocco]. The expeditionary force consisted of about 13,000 men (9,000 infantry, 1,100 cavalry, 1,225 artillery, 670 engineers, the remainder noncombattants).

The operation consisted of concentrating the force, marching inland in rough country, hindered by rain and bad weather, harassed by natives, to Constantine, breaching the walls and storming the city.

Cavalry performed missions of reconnaissance, seizing advanced positions, escorting artillery and convoys, protecting flanks and rear, participating in combat, foraging, and similar duties.

The account, which is in no sense a study of the operation, is of interest only as a narrative of typical cavalry operations in such a campaign.

A BREEDING DISTRICT IN THE SOUTHWEST.

[Un canton d'élevage dans le Sud-Ouest.] By M. Jean Bajon

This article briefly describes horse breeding in the canton of Gimont prior to the war and the conditions existing at the present time. He shows reasons for the decrease in breeding, and indicates methods for maintaining and encouraging activity.

AUTOMOBILE CHRONICLE. MAINTENANCE AND REPAIR IN THE S.T.C.R.P.

[Chronique automobile. — L'entretien et la réparation à la S.T.C. R.P.]

This article describes the methods of maintenance and repair in the Society of Transports in the Parisian Region, which operates about 3,500 busses on 213 lines over a distance of 1,800 kilometers in Paris and vicinity.

REVUE D'INFANTERIE (France)

By Major R.G. Tindall, Infantry

July 1937

A LEADER: GENERAL BARBOT.

[Un chef: Le général Barbot.] Marshal Pétain

Marshal Pétain pays tribute to the commander of the French 77th Division who was killed in the Artois attacks in May 1915, and describes the means by which General Barbot won the confidence of all ranks. The Marshal states that the solution of this problem of gaining the confidence of subordinates is found in the exact appreciation by the leader of human capabilities, in solicitude for the humblest, and in the protection of their command against subversive and destructive theories.

ORGANIZATION OF TRAINING DURING THE WAR BY THE FOURTH ARMY.

[L'organisation de l'instruction pendant la guerre à la IVe armée.] General Faury

THE REBIRTH OF THE 69TH INFANTRY.

[Le renaissance du 69e régiment d'infanterie.] By X . . .

COMBAT AGAINST ARMORED VEHICLES.

[Le combat contre les engins cuirassés.] Captain Soury

An analysis of the views of Major Adolf von Schell of the German Army in regard to antitank defense. The French author tends to differ with Major von Schell in regard to the comparative ineffectiveness of modern antitank defense.

TABLE SHOWING RELATION BETWEEN GRADES AND MILS.
[Table de correspondance des grades et des millièmes.] Lieutenant
Bernard

TRAINING OF INFANTRY CADRES.
[Instruction des cadres de l'Infanterie.] (I) Colonel Guigues

COLONIAL TACTICS.
[Tactique d'outre-mer.] General Clement-Grandcourt

A discussion of tactical methods suitable against Riffs or Arab tribesmen.

August 1937

BERTRIX, 22 AUGUST 1914: AN ENGLISH OPINION AND GERMAN
TESTIMONY.

[Bertrix, 22 août 1914: une opinion anglaise et un témoignage alle-
mand.] Colonel Bernis

Colonel Bernis, French intelligence authority, discusses the articles of Major Burne in "Fighting Forces" and also German articles on the battle which resulted in a French disaster. A French division was surprised and struck in flank while in a most unfavorable situation, its artillery all being in route column in a forest. Colonel Bernis shows that the troops fought valiantly to restore the situation, and clears their name of insinuations and cowardice. They merely applied an unsound tactical doctrine. The German victory, the article shows, was due more to luck than to any skill on the part of the German leaders, for the latter were nearly as badly surprised as the French.

LET US MECHANIZE THE DEFENSE.
[Mécanisons la défense.] Lieut.Colonel Fliecx

A plea for the adoption on a huge scale of mechanical aides to ground organization. The author shows the time necessary to really organize a position which can stop a formidable attack; he then shows what could be done by trench-digging machines—machines which can dig triangular ditches as antitank obstacles, wire-laying machines, steam shovels, concrete mixers and riveting machines. His conclusion is that it is quite possible to restore the rate of stabilization to World War conditions, despite the advent of tanks and mechanized forces. By mechanizing the defense, he believes that an assailant after a successful battle can be stopped on a line 50 to 80 kilo-
meters back.

REPRESENTATION OF INFANTRY FIRES.
[Figuration des feux d'infanterie.] Captain Bouvet

TRAINING IN TANKS.
[L'entraînement en char.] Major Aubert

TRAINING OF INFANTRY CADRES.
[Instruction des cadres de l'Infanterie.] (II) Colonel Guigues

September 1937

CURVED TRAJECTORY FIRE IN THE INFANTRY.
[Le tir courbe dans l'infanterie.] Colonel Schmitt
(See abstract, page 128)

A STUDY IN SIGNAL COMMUNICATIONS, BASED ON THE PROBLEM GIVEN IN THE COMPETITION FOR ADMISSION TO THE ÉCOLE DE GUERRE.

[Etude sur les transmissions: d'après le thème proposé au concours d'entrée à l'Ecole de guerre.] By X. Y. Z.

This is based on the new French signal communication instruction. The article discloses that French infantry regiments have five new voice radios intended for communication within the battalion.

REGIMENTAL HISTORIES: TRADITIONS IN THE SIDI BRAHIM BATTALION.

[Chronique des régiments: les traditions au bataillon de Sidi-Brahim.] Lieutenant Maurice

AVIATION AND TANKS.

[L'aviation et les chars de combat.] Chief Engineer Rougeron and Major Cailloux, French Navy

An analysis of a new study on the problem of airplanes acting against tanks. The Chief Naval Engineer insists that an armored division is at the mercy of an attack squadron, pointing out that the airplane is master of its attack direction. He absolutely condemns, therefore, the doctrine of employing tanks in dependent forces and justifies the French tank doctrine of tanks acting in liaison with the other arms. He says that a complete system of defense against the antitank plane is required. His conclusion is as follows: "Speed and armor may struggle for supremacy for a long while on land as on sea without either gaining a decisive advantage. But they will react powerfully upon each other. If it wishes to live, the tank, which has not yet paid much attention to the threat from the air, must adapt itself faster than the battleship has done."

However, Major Cailloux believes that Chief Naval Engineer Rougeron has made things too rosy for the antitank plane, and has underestimated the dangers to the latter. His conclusion is that the attack of tanks, like their protection, is not the affair of one single arm but rather of the cooperation of various means (guns, mines, planes, artillery, tanks) in which the emphasis will be upon one or the other of these means according to the situation. Thus, if strategically surprised by a mass of armored vehicles, one would be obliged to give the aviation the mission of stopping these vehicles, a mission which should not have to be imposed if the hostile attack were foreseen. He admits that airplanes are by no means a negligible factor in the struggle against tanks and concludes that tanks' armor must be reinforced on top and on the sides.

A LEGENDARY CANNON, THE BERTHA.

[Un canon légendaire: La Bertha.] Lieutenant Rocolle

In 1906, the German General Staff directed the Krupp factory to provide an extremely powerful and mobile piece. This demand for a super-cannon was the origin of the famous 420-mm mortars. The author traces the part they played in the war.

By 1910 the German Army had two mortars of somewhat different characteristics. One piece, called ipsilon, for reasons of secrecy, weighed 175 tons and could be broken down into 26-ton burdens for displacement by rail on special cars. It could go into battery in 36 hours if a special track had been previously constructed. This cannon fired a shell weighing 930 kilograms and had a range of 14,200 meters. Another piece called M, with mechanized traction, only weighed 42.6 tons and could be broken down into 18-ton loads. This piece could go into battery in a few hours. However, its ballistic qualities were clearly inferior to that of ipsilon. It fired a shell

weighing 800 kilograms and its range was only 9,300 meters. Its power of penetration was much less.

Tests of the two models were made near Thorn. Several hundred men of a training battery were given instruction in handling them and numerous civilian Krupp workmen knew of the matériel but secrecy was maintained.

Upon mobilization in 1914, the German army had three batteries, two of ipson, one of M matériel. Each battery consisted of two pieces. The battery commanders were officers of the old training battery.

One ipson battery and the M battery were placed at the disposition of General von Emmich's forces attacking Liege at the outbreak of war. The M battery of Major Erdmann established the renown of the "Bertha." It was unable to get into action until 6:00 PM, 12 August, when it opened fire upon the Pontisse fort. The next morning fire was resumed after a fog had lifted, and 12:30 PM the fort surrendered. The mortars changed position and opened fire on the Loncin fort where the commander of Liege, General Leman, had transferred his command post. At 4:00 PM the first shot was fired and at 5:15 PM the twenty-fifth. Major Erdmann saw an enormous flame, the fort opened up under the pressure of the explosion of a munitions magazine exploded by a shell. The Germans rushed forward and rescued the unconscious defender of Liege.

After Liege came the turn of Namur. At 10:00 AM, 21 August, Erdmann opened fire on Fort Marchovelette and at 11:00 AM, on Fort Maizeret. On the 22d, Maizeret having received 50 shells, was evacuated by its garrison, and on the 23d, Fort Marchovelette blew up. On 25 August, after change of position, the battery reduced Fort Suarlee and Fort d'Emines.

The M battery then advanced and assisted in reducing the forts of Maubeuge. Thereafter it assisted in the bombardment which wrecked the fortress defenses of Antwerp. From 12 August to 6 October this battery destroyed ten forts.

One ipson battery, the rail lines being finally repaired, got into position to bombard Maubeuge on 8 September but it was too late—the fortress capitulated. It did participate in the destruction of the Antwerp forts, knocking out several.

Lacking suitable objectives after October 1914, the Berthas were taken back to the rear, and in 1915 one battery crushed the forts of Kovno on the Russian front. Three batteries took part in the battle of Verdun in 1916. Douaumont was shelled on three days but few munitions were used and the fort was not seriously damaged. As the battle of Verdun grew in intensity, the super-cannon at times were given unsuitable targets, even being called upon to fire on trenches. The tubes, badly worn, lost much of their precision and a much lighter shell was utilized (about 400 kilograms). Douaumont was shelled several times by the Berthas employing these munitions. Finally the Berthas were withdrawn from the front and the battery personnel distributed among other units.

The author points out the importance of knowing the various factors of the problem of defense against such weapons. In conclusion, he remarks that works and defenses capable of withstanding bombardment by the Berthas have now been constructed.

RUSSIAN EMPLOYMENT OF TANKS.

[L'emploi tactique des chars à la lumière du nouveau Règlement Soviétique sur le Service en Campagne.]

Two articles appearing in the Russian "Armored Vehicles' Review," which bring out the general principles of the new Russian Field Service Regulations of 1936 insofar as tanks are concerned, are analyzed.

For a long time it seemed that the Red army had a tendency to consider the tank as a machine capable, by itself, of obtaining a decision by deep and massive action, conducted to a considerable extent independently of the other arms. The essential modification brought about by the 1936

Regulations, according to the French analysis, is that the action of tanks is only envisaged in close liaison with the other arms, particularly the artillery, and that any completely autonomous intervention of tanks is only admitted under exceptional circumstances. Nevertheless, intervention in mass and simultaneous action of tanks against the entire depth of the hostile position remain fundamentals of the Soviet doctrine.

In attacking a hostile position, tanks are employed in two groups: infantry supporting tanks (T.D.D.), and distant action tanks (T.P.P.) The latter by preference will be used in enveloping actions. Acting in liaison with aviation, the distant action tanks followed by other forces on the marching flank move into the enemy's rear and attack him from behind. If there is no uncovered flank a breakthrough will be realized by a combined action of tanks, aviation, infantry and artillery. In such a case the distant action tanks' mission would be to open the way to the hostile rear areas and annihilate reserves, staffs, artillery and cut off the hostile retreat.

This attack should be organized so that the infantry and infantry supporting tanks profit from the disorganization created in the hostile dispositions by the passage of the distant action tanks and that the distance between the infantry supporting tanks and distant action tanks be reduced to the minimum. In difficult terrain the attack of the infantry and infantry supporting tanks would precede the intervention of the distant action tanks.

The infantry supporting tanks are attached to infantry units and are under the orders of the infantry commanders. Tanks attacking a position of resistance must be supported by artillery. Not even a simple tank reconnaissance by infantry supporting tanks is to be made without this help.

The artillery prepares and supports the attack. If there are 30 to 35 guns per kilometer of front and two battalions of tanks per division, the artillery preparation may be reduced to one and one-half hours, but if there is a shortage of tanks, the preparation may last three hours.

REVUE MILITAIRE GENERALE (France)

(Formerly, *Revue Militaire Francaise*)

By Major R.G. Tindall, Infantry

July 1937

THE EVOLUTION OF CAVALRY.

[L'évolution de la cavalerie.] General Brécard

A noted French cavalryman, former general of the arm, discusses the evolution of French cavalry since 1917, and its gradual mechanization. It appears that the French now have three light mechanized divisions, created from cavalry units. The other French cavalry divisions contain one mechanized brigade and two horse brigades. The author is a partisan of reasonable motorization, but warns against allowing more horse regiments to disappear, pointing out that France has little gasoline and would have to depend on overseas shipments for such supply. He also warns the French cavalry that officers of the arm must be able to serve equally well with horse cavalry, armored cars or dragons portees.

SEA, LAND, AIR.

[Mer, terre, air.] Vice Admiral Castex

The inspector general of naval forces points out that for a continental European nation, the land forces and the air forces are the instruments of a

short war; the naval forces those of a long war, becoming more and more important as hostilities are prolonged. He then considers the difficulties which a government encounters in passing on the financial needs of army, navy and air force and brings out that the problem of how strong a navy France should construct is greatly complicated by political questions, particularly the future attitude of Great Britain. The conclusion is that financially the air forces should be favored, since they can assist both army and navy in case of war, while the inverse is not true. The author holds that the air forces being the most "reversible" should be particularly strong.

COLONIAL AVIATION.

[L'aviation d'outre-mer.] General Armengaud

The author discusses whether France gets the maximum benefit from its exterior air forces from the point of view of augmenting her strength in time of war and of maintaining the security and integrity of the colonial possessions in time of peace. His proposals, which apparently are being followed, involve providing colonial squadrons with the most modern material and likewise with commercial planes which could be armed in case of necessity. In case of war, march squadrons would be formed, equipped with the modern material and immediately sent to France.

ENGLAND IN THE EASTERN MEDITERRANEAN.

[L'Angleterre dans la Méditerranée orientale.] Andre Reussner

A member of the French Naval Historical Service considers the present situation of England and other powers and gives solutions to the problems he proposes. He shows the inevitable interdependence of land, sea and air forces. Various aspects of an Anglo-Italian conflict are discussed.

THE FRENCH ARDENNES.

[L'ARDENNE FRANCAISE.] Captain Thoumin

A military geography study of the region which can be considered either as a bastion defending the French plain or as a salient from which a defender can strike the flank of an invader endeavoring to occupy the Belgian and Lorraine mines.

August 1937

CROSSING OF THE SAVE NEAR BELGRADE BY THE GERMAN XII RESERVE CORPS, 7-10 OCTOBER 1915.

[Le franchissement de la Save devant Belgrade, par le XIIe C. de réserve allemand du 7 au 10 octobre 1915.] General Radenkovich

The chief of Yugoslav engineers describes and analyzes an interesting river crossing, going into great detail. He concludes that the technical preparation for the crossing was insufficient, for the troops neither had the necessary equipment in time nor made the best use of the boats and pontoons available. The crossing took longer than expected and fewer troops than expected were on the far bank by daylight. These soon ran short of ammunition. It seems that contrary to orders given, each soldier did not carry 150 cartridges. The reserve of ammunition was placed in separate pontoons and those were the ones which were sunk by the Serbian fire. The measures taken by the corps commander to regulate circulation on the bridge were insufficient and numerous units moving into the attack area crossed columns.

The delays and errors committed would have resulted in a disaster had the Serbians possessed powerful aviation. In future wars in which aerial attacks can be expected, a block system for regulating the movements of

troops approaching the bridge must be provided. Energetic officers with military police under their orders should be placed in each zone. They should have telephone connection with each other and have permanent liaison with the corps, the divisions, the artillery and the engineer commanders. For north-south circulation (the direction of attack) departure from Zone 3 should only be permitted when it was certain that Zone 4 was free. Only by such measures rigorously applied can delays and confusion be avoided.

The initiative of one regimental commander who pushed on and attacked without sufficient artillery support and gained an important height which happened to be weakly held prevented a German catastrophe.

Errors made by the Serbian defender included the following:

(1) The defense had insufficient depth and was almost linear. Eighteen out of twenty battalions which were available in the region considered were in front line and only two in reserve. Moreover the most dangerous directions were weakly guarded. The artillery was deployed too far forward, was rapidly neutralized by the German artillery and certain batteries had to displace to the rear at the crisis of the fighting.

(2) The main line of resistance was on the river bank and the most important heights in rear were not even occupied by infantry.

(3) The defensive organization was incomplete. There had been plenty of time and adequate matériel but only a hasty ground organization was accomplished. The slight trenches were on a forward slope, extremely visible, and were not in depth. Centers of resistance were not mutually supporting.

(4) The intelligence service was feeble and poorly organized and as a result the Germans obtained strategic surprise.

(5) The available reserves did not move promptly to the crossing places.

(6) One intact bridge was abandoned by the defenders.

The study of General Radenkovitch's article will be of considerable interest for instructors.

RESTRICTIONS ON STRATEGY.

[Les servitudes de la stratégie.] Vice Admiral Castex

A discussion of the factors other than purely military which must often be taken into consideration. These include political, moral, and economic factors. He also points out that land strategy is affected by the naval and air situation and vice versa.

GERMAN FIELD ARTILLERY.

[Artillerie de campagne allemande.] General Boichut

German division artillery no longer contains a gun of 75-mm or 77-mm. The light artillery consists entirely of 105-mm howitzers, three battalions to the division. To this is added a medium regiment of two battalions of 15-cm howitzers and of guns of 100-mm and 150-mm.

The old guns presumably still exist and at times may be used for reinforcing matériel, but the bulk of the German matériel is new. There no longer is shrapnel; only one projectile is being used; everything is being made simple.

General Boichut points out the formidable nature of the new German artillery and warns the "defensive" peoples that they must not fall too far behind Germany in military preparedness.

MATÉRIEL DICTATES TACTICS.

[Le matériel commande la tactique.] Albert Courquin

A civil engineer describes the evolution of the fighting airplane during the World War. He is inclined to fear that the French are on the wrong path in construction of fighting planes, and concurs in the statement of the Italian ace, Scaroni, who writes that "armament is worth more than speed."

The abandonment of obsolete formulas is necessary. M. Courquin believes that air combat is going to be carried on at far greater ranges than during the World War because of the greatly increased speed of planes, rendering it difficult to approach hostile planes as closely as formerly. Therefore, he believes that the problem to be solved is that of aerial artillery, and he demands that for the future of France that French technical services solve this problem rapidly.

September 1937

THE WAR OF RUMANIAN NATIONAL UNITY 1916-1918.

[La guerre de l'unité roumaine (1916-1918).] General Constandaché

The creator of the Rumanian Army Historical Service begins a series of articles on the World War in the Rumanian theater. In the first issue he covers events from the outbreak of war until the first penetration into Walachia by the German Groupment Kuhne. General Constandaché gives the rival strategical plans during the various periods and then briefly covers the operations, thus laying the foundation for strategical criticism.

GERMAN CONCEPTIONS ON DEFENSIVE ORGANIZATION OF NATIONAL TERRITORY.

[Conceptions allemandes sur l'organisation défensive du territoire.]
Lieut.Colonel Montigny

The author traces the German attitude toward fortification from the early period of the World War when permanent fortification was deemed worthless, to the present. He contrasts the views of Lieutenant Colonel Frobenius, a retired German officer, who back in 1915 refused to accept this view and concluded that the role of fortresses is closely associated with that of the armies; that they must participate in the armies' operations with all available means; that they must be under the authority of the commander-in-chief and that their works must be incorporated in the armies' lines of defense. Frobenius held that the adversary must be held far away from the fortifications and that these must not be conspicuous targets but must be dissimulated and dispersed in small elements. At the same time an anonymous German author discussed the form to be given to modern permanent works. He concluded that all access from the front must be eliminated, that deep underground communications with double entrance far in rear must be provided and that numerous and safe accommodations should be provided for the garrison which should live permanently in the fortified work, which should be carefully camouflaged.

This author favored permanent fortification only in those zones where inferior effectives would have to resist for a long time against more numerous armies. He wanted no more closed and isolated fortresses but extended systems, near natural or artificial obstacles, and close to the frontiers; in other words, prepared battlefields from which an offensive could suddenly debouch and which could break a hostile offensive. The conclusions of this author of 1915 singularly resemble recent articles in the French press.

Colonel Montigny then passes to the ideas of Konrad Metzel. The latter, after discussing certain technical necessities, adds that "the final term of fortification would find not only the country but each province, each city, almost each locality, a closed fortress as was the case before 1650." Metzel wants fortifications covering lines of communications, combined with inundations. These are to be the strong points where the population of the cities threatened by aviation or mechanized forces can take refuge. These fortified areas will constitute a new version of the old depots which the railroad and the motor truck caused to disappear. Metzel concludes that at present we are on the threshold of new progress and development in fortifications and that these will lead in a different direction on untrodden fields.

In his conclusions, Colonel Montigny contrasts the views of the "old practitioner" Frobenius, with "the much more superficial ideas" of Metzel.

CONSIDERATIONS ON THE OFFENSIVE.

[Considérations sur l'offensive.] Major Krebs

(See abstract, page 102)

THREE COLONIALS; THE SAME THOUGHT.

[Trois coloniaux: une même pensée.] Captain Demoulin

The author seeks to bring out the similarity in the conceptions and realizations of Bugeaud, Gallieni and Lyautey, three French Colonial generals and administrators.

REVUE MILITAIRE SUISSE (Switzerland)

By Major T.R. Phillips, Coast Artillery Corps

July 1937

SOME THOUGHTS ON DEFENSIVE COMBAT.

[Quelques considérations sur le combat défensif.] Colonel Lecomte

This is a reply to the article in the January 1937 issue of "Revue Militaire Suisse" (see page 181, C&GSS Quarterly, September 1937), which contended that the selection of defensive positions should be based primarily on antitank obstacles and the possibilities of antitank fire. The author agrees with this assumption in open ground. But in Switzerland, with its numerous natural obstacles and limited maneuver room for tanks, he believes the enemy most to be feared is still the infantry. In general, to meet their special military problem, defensive positions which will thwart strong infantry attacks should be chosen.

WHO WILL EXERCISE THE UNIFIED COMMAND?

[Qui exercera le commandement unique?] Lieut.Colonel Mayer

(A translation of this article is available in the C&GSS Library.)

POSSIBLE EFFECTS OF OUR NEW MILITARY ORGANIZATION ON THE
EMPLOYMENT OF THE ARTILLERY.

[Répercussions possibles de notre nouvelle organisation militaire
sur l'emploi de l'artillerie.] Major Gonard

This article, continued from the June 1937 issue of "Revue Militaire Suisse," discusses the employment of the division artillery in the approach march, the attack and the defense.

August 1937

THE FINNISH CIVIL GUARD.

[La garde civique finlandaise.] General Clément-Grandcourt

The Finnish Civil Guard is an analogous institution to the Fascist Black and Brown Shirts. The female section is composed of 90,000 women. Membership is voluntary. No pay accrues to the member but he has numerous obligations. The Guard is officially a part of the army and is instructed by a small cadre of officers and noncommissioned officers. Communists and

Socialists are refused membership. The primary object of the Guard is to prevent the overthrow of the Finnish Republic from within.

THE DEFENSE OF SWITZERLAND THROUGHOUT THE AGES.
[La défense de la Suisse à travers les âges.] Colonel Lecomte

AUTOMATIC REACTION IN WAR.
[L'automatisme à la guerre.] Lieut.Colonel Mayer

Drill carried to the point of automatic reaction without thought is undesirable. It is not a question of "drill" or "education," but of "drill" and "education." The combatant needs moral qualities more than any others. These permit him to resist weakness and to act with all his force. War is a sequence of conditions which demand reflection and judgment. Automatic reaction is no substitute.

Bismarck liked to relate a story of Moltke during the Franco-Prussian War. When some bad news arrived at general headquarters during some battle of 1866 or 1870, all were uneasy. Bismarck drew his cigar case with several cigars in it from his pocket and tendered it to Moltke. One of the cigars was of superior quality. That was the one chosen by the Major General. "All's well," said Bismarck to his entourage, "he keeps his head. We need have no fear. He knows what he is doing."

MORAL PREPARATION.
[Préparation morale.] Lieutenant Grosjean

A collection of aphorisms for the officer.

September 1937

THE PREAMBLES TO THE ATTACK ON VERDUN.
[Les prodromes de l'attaque de Verdun.] General Rouquerol
(See abstract, page 121)

THE FINNISH CIVIL GUARD.
[La garde civique finlandaise.] (II) General Clément-Grandcourt

THE INTERNATIONAL AERONAUTICAL MEETING AT ZURICH.
[Le meeting aéronautique international de Zurich.] Captain Schlegel

RIVISTA DI ARTIGLIERIA E GENIO (Italy)

By Major E.M. Benitez, Coast Artillery Corps

July-August 1937

THE WORK OF MARCONI IN THE TECHNICAL FIELD OF MILITARY APPLICATION.
[L'opera di Marconi nel campo tecnico applicativo militare.] General Sacco

Marshal Badoglio's remarks in his book, "Guerra d'Etiopia," concerning the use of radio sums up Marconi's great contribution to the military field:

"Without radio, the conquest of Ethiopia could not have been possible."
The author extols Marconi's scientific works, particularly the invention of radio-telegraphy.

MATÉRIEL AND METHODS OF TRANSPORTATION OF THE ALPINE ARTILLERY.

[Materiale e mezzi di trasporto dell'artiglieria alpina.] Lieut. Colonel Gay

The Alpine artillery is required to deal with conditions existing in that part of the country where it is intended to be employed — the Alps. It should be the mountain fast artillery, and should be made as fast and as independent as possible by limiting the weight of the parts to be transported to 130 pounds; providing it with adequate means of transportation, and reducing to the minimum the dead weight to be carried by the mule in order to increase the transportation facilities of food supply and munitions.

NEW REGULATIONS FOR THE EMPLOYMENT OF THE ARTILLERY IN THE GERMAN ARMY.

[Le nuove norme per l'impiego d'artiglieria dell'esercito germanico.] Lieut. Colonel Mancinelli

An abstract of the Regulations for the Employment of the Artillery in the German Army, 26 January 1937.

STEREO-DIOPETER "SILVESTRO."

[La stereodiottra "Silvestro."] Captain Silvestro

An instrument invented by the author designed for topographical work and especially suitable for military purposes.

LANDING OPERATIONS.

[Operazioni di sbarco.] Bravo

A study of landing operations on hostile shores, with historical examples of the Russo-Japanese War, 1904-1905, the Italo-Turkish War of 1911-1912, the German Expedition of the Baltic Islands in 1917 and the Gallipoli Campaign, 1915. All these expeditions, Gallipoli excepted, were successful. At Gallipoli the military and naval commands were entrusted to separate officers, while in the other cases named above, the landing operations were under a single command. The conclusion is that a landing operation involves the combined action of the army, navy and aviation, which must work in close cooperation and require, therefore, the designation of a single coordinating commander.

REMARKS ON THE STUDY AND EMPLOYMENT OF CHEMICAL WARFARE IN WAR.

[Concetti per lo studio e l'impiego dei mezzi bellici con aggressivi chimici.] Lieut. Colonel Foa

A discussion of the principles of chemical warfare.

MILITARY GEOGRAPHICAL CHARACTERISTICS OF SICILY.

[Caratteristiche geografico-militari della Sicilia.] General Cadorna

The island of Sicily where the army grand maneuvers involving land, sea and air forces were conducted, has acquired a great strategic impor-

tance, due to its position in the Mediterranean Sea. General Cadorna describes the coast line, the climate, means of communication, and characteristics of the terrain, and discusses the suitability of the island as a training ground for troops.

IS SNOW AN UNSURMOUNTABLE OBSTACLE TO MOTOR VEHICLES?
[La neve è un ostacolo insormontabile alla marcia degli autoveicoli?]
Lieut.Colonel Amione

Mechanical transport, which has acquired such an important position in civil and military life today, finds a great obstacle in the snow. The problem of travelling by motor over terrain covered with snow, while not insoluble, requires technical knowledge and physical and moral qualities on the part of the troops. Mountain passes, like those in the Alps, are closed by snow for several months in the year. Several methods are discussed, among them the chain drive which has its limitations, and the clearing of snow paths by means of plows. In the author's opinion, the clearing of the Alpine passes, while difficult, is not insuperable.

THE FORM OF POWDER GRAINS AND ITS FUNCTIONS.
[Della forma del grano di polvere e della funzione di forma.] General Mattei

A technical discussion of powder grains with a series of mathematical calculations concerning the characteristics and shapes of the grains.

CALCULATION OF THE TRAJECTORY OF PROJECTILES.
[Il calcolo della traiettoria percorsa da un proietto.] Lieut.Colonel Bruno

Another technical study on the trajectory of projectiles with formulas, tables and examples for calculations.

September 1937

THE CORPS OF ENGINEERS DURING THE YEARS XIII AND XIV OF THE FASCIST ERA AND DURING THE CAMPAIGN IN EAST AFRICA.
[L'arma del Genio negli anni XIII e XIV dell'era fascista e durante la campagna in Africa Orientale.]

The report of the signal branch of the corps of engineers during the Abyssinian Campaign is divided into two parts: the period of preparation, December 1934 to October 1935, when permanent lines were installed under the supervision of Engineer Headquarters; and the period of active operations when the higher units established their own communication systems utilizing the signal corps units attached to them.

RADIO INTERCEPTION IN CAMPAIGN.
[Intercettazione radiotelegrafica e radiogoniometria campale.] Major Alessandro

The position of enemy radio stations on the ground may be located by means of a field radiogoniometer, which determines the source of the radio signal. This instrument consists of a receiver provided with a circle graduated to read angles and a disc-shaped antennae.

The radiogoniometer gave excellent results during the World War. Marshal Foch's maps showed the density of enemy radio stations; as a result of observation it was determined that an attack might be expected

in locations where there were a large number of stations, while on the other hand, a few stations indicated a quiet sector. The German preparations for the offensive early in 1917 and the German intentions to retire in 1918 were detected by this method, while the French radio stations located German Zeppelins on their way to bombard London.

ACOUSTIC METHOD OF LOCATING AIRPLANES.

[Orientamenti dell'ascoltazione aerea.] Major Memmo

A description of listening devices used to discover and locate airplanes in flight.

EMPLOYMENT OF A PHOTO-ELECTRIC SECTION IN THE DEFENSIVE.

[Impiego di una sezione fotoelettrici in difensiva.] Lieut.Colonel Vanelli

A description of the work of a photo-electric section illustrated by a practical example.

WIRE ROPEWAYS ANCHORED AT BOTH ENDS.

[Le teleferiche militari con funi ancorate ad entrambe le estremità.] Lieut.General Bellusci

A study dealing with the theory of ropeways, to be followed by practical examples in later issues of the "Rivista di Artiglieria e Genio."

Portable ropeways were used in Italy as early as 1906. The author describes the latest type of ropeways known as the B.M.K., and the calculation of the diameter of the hauling ropes.

ROYAL AIR FORCE QUARTERLY (Great Britain)

January 1938

THE ROYAL CANADIAN AIR FORCE

THE CHAOTIC STATE OF THE INTERNATIONAL LAW GOVERNING BOMBARDMENT. Spaight

BOMBING THE BOMBERS: A NEW METHOD OF ATTACK AGAINST BOMBING AIRCRAFT

CASUS BELLI. By E.L.H.-W.

ROYAL ENGINEERS JOURNAL (Great Britain)

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THE YOUTH MOVEMENT IN ITALY

STRIP ROADS IN SOUTHERN RHODESIA. Captain Bader

ROYAL TANK CORPS JOURNAL (Great Britain)

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TANK TACTICS IN THE RUSSIAN ARMY
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SIGNAL CORPS BULLETIN

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EDGAR ALLAN POE, CRYPTOGRAPHER — ADDENDUM. Lieut.Colonel
Friedman

TRAINING OF RADIO OPERATORS FOR MECHANIZED UNITS. Gapich

UNITED SERVICES REVIEW (Great Britain)

30 September 1937

MOBILIZATION AND MOBILITY. MECHANIZED FORCES THE SPEARHEAD
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THE CONDUCT OF AERIAL WARFARE AS VISUALIZED IN FOREIGN COUNTRIES.

[Die Führung des Luftkrieges im Spiegel des Auslandes.] Lieutenant Colonel Knause

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[Der Anteil der Schule an der Wehrerziehung der deutschen Jugend.] Dr. Muhle

COORDINATION OF RAIL, WATER AND MOTOR TRANSPORTATION IN PEACE AND WAR.

[Probleme der Zusammenarbeit zwischen Eisenbahn, Wasserstrasse und Kraftwagen im Frieden und im Kriege.]

STRATEGIC MOTOR ROADS IN FRANCE? PLANS OF A FRENCH GENERAL.

[Strategische Autobahnen in Frankreich? Vorschläge eines französischen Generals.] Major Welsch

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[Panikstimmung?] General Grimme

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[Sind für Deutschland Neutralitätsvorbereitungen nach Art des neuen USA.-Neutralitätsgesetzes nötig?] Captain Vanselow

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[Zwischen Durchbruchs- und Cannae-Schlacht im Nordischen Kriege. Narwa und Klissow.] (I) Dr. Haintz

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HOW SHOULD THE PRIORITY OF DEVELOPMENT OF RAILWAYS, ROAD-NET, AIR AND WATERWAYS, AS A COMMON PROBLEM IN REGARD TO MILITARY IMPORTANCE, BE DETERMINED?

[Wie ist die neuzeitliche Weiterentwicklung der Schienen-, Strassen-, Wasserstrassen- und Luftwege als gemeinsames Verkehrsproblem in seiner wehrpolitischen Bedeutung zu bewerten?] E. Marquardt

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[Betrachtungen über die Bewertung von Erfahrungen mit Kriegsmaterial in Spanien.] Lieut.Colonel Däniker

THE BREAKTHROUGH AND CANNAE IN THE NORDIC WAR. NARWA
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[Zwischen Durchbruchs- und Cannae-Schlacht im Nordischen Kriege. Narwa und Klissow.] (II) Dr. Haintz

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List of Periodicals Indexed and Key to Abbreviations

A Ord—Army Ordnance

A Quar—Army Quarterly (Great Britain)

Bul Belge Mil—Bulletin Belge des Sciences Militaires (Belgium)

Can Def Quar—Canadian Defence Quarterly (Canada)

Cav Jour—Cavalry Journal

Cav Jour (GB)—Cavalry Journal (Great Britain)

Chem War—Chemical Warfare Bulletin

CA Jour—Coast Artillery Journal

FA Jour—Field Artillery Journal

Ftg Forc—Fighting Forces (Great Britain)

Inf Jour—Infantry Journal

Jour RAMC—Journal of the Royal Army Medical Corps (Great Britain)

Jour R Art—Journal of the Royal Artillery (Great Britain)

Jour RUSI—Journal of the Royal United Service Institution (Great Britain)

Jour USII—Journal of the United Service Institution of India (Great Britain—India)

Kraft—Kraftfahrkampftruppe (Germany)

MC Gaz—Marine Corps Gazette

Mil Mitt—Militärwissenschaftliche Mitteilungen (Austria)

Mil-Woch—Militär-Wochenblatt (Germany)

Mil Eng—Military Engineer

Mil Surg—Military Surgeon

Nav Inst Proc—Naval Institute Proceedings

Pion—Pioniere (Germany)

QM Rev—Quartermaster Review

Rec News—Recruiting News

Res Off—Reserve Officer

Rv l'Air—Revue de l'Armée de l'Air (France)

Rv d'Art—Revue d'Artillerie (France)

Rv de Cav—Revue de Cavalerie (France)

Rv d'Inf—Revue d'Infanterie (France)

Rv Mil Gen—Revue Militaire Générale (France)

Rv Mil Suisse—Revue Militaire Suisse (Switzerland)

Riv Art e Gen—Rivista di Artiglieria e Genio (Italy)

RAF Quar—Royal Air Force Quarterly (Great Britain)

Roy Eng Jour—Royal Engineers Journal (Great Britain)

RTC Jour—Royal Tank Corps Journal (Great Britain)

SC Bul—Signal Corps Bulletin

US Rev—United Services Review (Great Britain)

Vet Bul—Veterinary Bulletin

Ws & Wr—Wissen und Wehr (Germany)

For Aff—Foreign Affairs

Jan—January

Feb—February

Mar—March

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May—May

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AERIAL WARFARE

- The battle of Guadalajara. (Mil Eng—Jan-Feb 1938)
 Air bombing. (Ftg Forc—Dec 1937)
 The objective in aerial warfare. (Nav Inst Proc—Feb 1938)
 "The rôle, organization and training of anti-aircraft groups, with a view to their employment to the best advantage in: (a) Forward areas overseas; (b) Bases overseas." (Jour R Art—Jan 1938)
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 The Sino-Japanese War. (Jour RUSI—Nov 1937)
 The chaotic state of the international law governing bombardment. (RAF Quar—Jan 1938)
 Bombing the bombers: A new method of attack against bombing aircraft. (RAF Quar—Jan 1938)
 Air bombardment. (US Rev—14, 28 Oct 1937)
 Strangeness of international courtesies. (US Rev—4 Nov 1937)
 Panic and undisciplined masses. (US Rev—9 Dec 1937)
 Air raid precautions are part of rearmament. (US Rev—16 Dec 1937)
 Air raid precautions. Towards a safer defence. (US Rev—23 Dec 1937)
 Bombing of the U.S. Gunboat Panay. (US Rev—13 Jan 1938)
 Balloons and barrages. (US Rev—20 Jan 1938)
 Sea, land, air. (Rv Mil Gen—Jul 1937)
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 Close aerial reconnaissance. (Bul Belge Mil—Jul 1937)
 Aerial warfare against large cities. (Bul Belge Mil—Sep 1937)
 Study on anti-aircraft defense. (Rv l'Air—Sep 1937)
 Air attack of a city. (Rv l'Air—Oct 1937)
 Conduct of aerial warfare as visualized in foreign countries. (Ws & Wr—Jul 1937)
 What ideas can the navy suggest for use by aviation? (Ws & Wr—Sep 1937)
 Passive defense. (Rv d'Art—Aug 1937)
 Observation aviation in France. (Mil-Woch—6 Aug 1937)
 Aerial combat between pursuit and bombers. (Mil-Woch—27 Aug 1937)
 The air corps within the organization of the national defense. (Mil-Woch—3 Sep 1937)
 Has strategy changed as a result of the World War? [See "Abstracts"]

AERONAUTICS

- The International Aeronautical Meeting at Zurich. (Rv Mil Suisse—Sep 1937)
 Nationalization of the aviation industry. (Rv l'Air—Sep 1937)

AIR ARM

Organization and Equipment

- The Royal Canadian Air Force. (RAF Quar—Jan 1938)
 Advances in aeroplane construction. (US Rev—30 Sep 1937)
 Colonial aviation. (Rv Mil Gen—Jul 1937)
 Matériel dictates tactics. (Rv Mil Gen—Aug 1937)
 Creation of German national socialist aviation society. (Bul Belge Mil—Jul 1937)

- Aviation review. (Bul Belge Mil—Sep 1937)
 Compromise, technical and military, and radical solutions. (Rv l'Air—Aug 1937)
 Military application of the Fauvel "flying wing." (Rv l'Air—Sep 1937)
 New American bombing planes. (Mil-Woch—13 Aug 1937)
 Thoughts on organization, peace-time training and employment of modern air forces. (Mil-Woch—10 Sep 1937)

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- A breeding district in the southwest. (Rv de Cav—Sep-Oct 1937)
 Care of horses. (Mil-Woch—13 Aug 1937)

ANTI-AIRCRAFT ARTILLERY

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- Study on anti-aircraft defense. (Rv l'Air—Sep 1937)
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- Tactical and strategical importance of anti-aircraft artillery. (Mil-Woch—15 Oct 1937)

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- Aviation and tanks. (Rv d'Inf—Sep 1937)
- Motorization in foreign armies. Mechanized and motorized units and the defense against them. (Kraft—Aug 1937)
- Some thoughts on defensive combat. (Rv Mil Suisse—Jul 1937)
- Artillery versus tanks. (Bul Belge Mil—Aug 1937)
- Motorization and mechanization. (Bul Belge Mil—Aug 1937)
- Conference on the military automobile. (Bul Belge Mil—Aug 1937)
- Design of anti-tank gun positions. (Pion—Aug 1937)
- Miscellaneous information. (Rv d'Art—Sep 1937)
- Support of infantry by fast tanks and artillery. [See "Abstracts"]

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- Possible effects of our new military organization on the employment of the artillery. (Rv Mil Suisse—Jul 1937)

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- Preparedness in England. A study of industrial mobilization. (A Ord—Jan-Feb 1938)
- The miracle of German rearmament. (US Rev—18 Nov 1937)
- Matériel dictates tactics. (Rv Mil Gen—Aug 1937)
- Compromise, technical and military, and radical solutions. (Rv l'Air—Aug 1937)
- Weight of arms. (Mil-Woch—13 Aug 1937)
- Thoughts on the security of an unarmored force. [See "Abstracts"]

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- Armored forces. (Inf Jour—Nov-Dec 1937)
- Combat against armored vehicles. (Rv d'Inf—Jul 1937)
- Further news concerning motorized elements in foreign armies. (Kraft—Oct 1937)
- France: The heavy-armored car "Berliet P.C." (Bul Belge Mil—Jul 1937)
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- Motorization in various countries—the German armored division. (Bul Belge Mil—Aug 1937)
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- Lessons of the Spanish War. An estimate of the military factors: men and matériel. (A Ord—Jan-Feb 1938)
- "History says we'll fight, so what." (Res Off—Dec 1937)

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- Man and mechanics. Training a soldier. (A Quar—Jan 1938)
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- Modern attack trends. (Inf Jour—Nov-Dec 1937)
- Casus belli. (RAF Quar—Jan 1938)
- Mobilization and mobility. (US Rev—30 Sep 1937)
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- Britain's position in another war. (US Rev—2 Dec 1937)
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- Let us mechanize the defense. (Rv d'Inf—Aug 1937)
- Who will exercise the unified command? (Rv Mil Suisse—Jul 1937)
- Automatic reaction in war. (Rv Mil Suisse—Aug 1937)
- Moral preparation. (Rv Mil Suisse—Aug 1937)
- Defense of canals on level ground. (Bul Belge Mil—Jul 1937)
- The chemical arm in the tactical domain. (Bul Belge Mil—Jul 1937)
- Extension of the combat zone and its results. (Rv l'Air—Sep 1937)
- Conduct of aerial warfare as visualized in foreign countries. (Ws & Wr—Jul 1937)
- The political problem and the conduct of war. (Ws & Wr—Sep 1937)
- Field fortifications for a protracted resistance. (Mil Mitt—Jul 1937)
- Landing operations. (Riv Art e Gen—Jul-Aug 1937)
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 Common objectives of allied armies require common preparations for war. (Mil-Woch—24 Sep 1937)
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 Considerations on the offensive. [See "Abstracts"]
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 Thoughts on the security of an unarmored force. [See "Abstracts"]
 The preambles to the attack on Verdun. [See "Abstracts"]
 "They didn't know how." (Cav Jour—Jan-Feb 1938)

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History

The sedentary Cannoneers of Lille. (Rv d'Art—Jul 1937)
 Artillery in the time of Charles XII. (Rv d'Art—Sep 1937)

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German field artillery. (Rv Mil Gen—Aug 1937)
 The reorganization of the Danish Army. (Bul Belge Mil—Jul 1937)
 The sedentary Cannoneers of Lille. (Rv d'Art—Jul 1937)
 The heavy howitzer artillery of Germany in the War of 1914-18. (Rv d'Art—Sep 1937)
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The proposed Field Artillery regiment. (FA Jour—Nov-Dec 1937)
 Reflections and recollections France and Flanders, 1914. (Jour R Art—Jan 1938)
 Possible effects of our new military organization on the employment of the artillery. (Rv Mil Suisse—Jul 1937)
 Artillery versus tanks. (Bul Belge Mil—Aug 1937)
 Siege and fortress artillery in 1914. (Rv d'Art—Sep 1937)
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 New regulations for the employment of the artillery in the German Army. (Riv Art e Gen—Jul-Aug 1937)
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 Calculation of the trajectory of projectiles. (Riv Art e Gen—Jul-Aug 1937)
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 German and French tactical principles for the employment of tanks. (Mil-Woch—22 Oct 1937)
 Support of infantry by fast tanks and artillery. [See "Abstracts"]
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 Defence or attack? (A Quar—Jan 1938)
 We attack. (Inf Jour—Nov-Dec 1937, Jan-Feb 1938)
 Modern attack trends. (Inf Jour—Jan-Feb 1938)
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 Fire and movement in tank attack. (Bul Belge Mil—Aug 1937)
 Aerial warfare against large cities. (Bul Belge Mil—Sep 1937)
 Air attack of a city. (Rv l'Air—Oct 1937)
 Engineers in attack. (Pion—Aug 1937)
 Attack and defense on the Western Front in 1918. (Mil Mitt—Jul 1937)
 A corps attack supported by tanks. (Mil Mitt—Jul 1937)
 German and French tactical principles for the employment of tanks. (Mil-Woch—22 Oct 1937)
 Support of infantry by fast tanks and artillery. [See "Abstracts"]
 The preambles to the attack on Verdun. [See "Abstracts"]

AUSTRIA (ARMY OF)

Further news concerning motorized elements in foreign armies. (Kraft—Oct 1937)
 Suggestions on food control in making preparations for war. (Mil Mitt—Sep 1937)
 Miscellaneous information. (Rv d'Art—Jul, Sep 1937)

AUSTRO-HUNGARY (ARMY OF)

Krasnik—Lublin, 1914. (Mil Mitt—Sep 1937)
 The beginning of the war between Austro-Hungary and Russia and the attack against Siedlec. (Mil-Woch—20 Aug 1937)

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Creation of German national socialist aviation society. (Bul Belge Mil—Jul 1937)

B

BELGIUM (ARMY OF)

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The employment of the Italian Battle Reserves during the Caporetto breakthrough, 24-27 October 1917. (Mil Mitt—Aug 1937)
Cavalry at Lodz. [See "Original Military Study"]

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Fourth Army maneuvers. (Vet Bul—Jan 1938)
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"They didn't know how." (Cav Jour—Jan-Feb 1938)

CHEMICAL SERVICE

Gas as a weapon. (Chem War—Jan 1938)
Science and future warfare. (Jour RUSI—Nov 1937)
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Aerial warfare against large cities. (Bul Belge Mil—Sep 1937)
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What about our Far East Policy. (MC Gaz—Nov 1937)
Far Eastern antipathies. (For Aff—Jan 1938)
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Coast defense training exercises in Great Britain in July 1937. (Mil-Woch—10 Sep 1937)

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 Engineers in attack. (Pion—Aug 1937)
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The preambles to the attack on Verdun. [See "Abstracts"]

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THE SPANISH CIVIL WAR*

(To 1 March 1938)



SITUATION AS OF 1 March 1938

FIGURE 1

A brief summary of the Spanish Civil War was published in our December issue, covering the most important operations from the beginning of the hostilities to the capture of Gijón on the Asturian front.

Almost twenty months have elapsed since the outbreak of this war, yet the strife appears to grow more bitter and uncompromising with each month of bloodshed and neither side has been able to achieve a decisive victory.

It will be recalled that almost immediately after the beginning of the war, the Insurgents advanced from the south in three columns, via the Saragossa, Burgos and Valladolid highways, sweeping aside the weak and poorly organized and disciplined Government militia, and in a comparatively short time had reached the foot of the Guad-

*The Valencia Government forces have been called at various times Leftists, Loyalists, Reds, Republicans and Government; Franco's forces, Rightists, Insurgents, Rebels, and Facists. In this account, the terms Insurgents and Government will be used throughout.

arrama mountains (Figure 2). However, this advance was checked at the gates of Madrid, so General Franco turned his attention to more favorable objectives and quickly captured the city of Malaga, in the south, on 9 February 1937, thus enlarging the seacoast overlooking Spanish Morocco, from where he had recruited his finest troops. Striking, then, to the north, he captured Bilbao, Santander and Gijón in succession and by the last of October 1937, the Asturian campaign had successfully ended. Preparations were immediately started for an offensive on the Aragon front, with a drive to the Mediterranean that would divide Government Spain into two portions and compel the Valencia government to capitulate.

Temporary stagnation of ground operations followed the Asturian campaign, activities being largely confined to air raids. Suddenly, on 15 December, the Government forces surprised Franco by launching an offensive against the Insurgent salient at Teruel.

THE BATTLE OF TERUEL

The city of Teruel, capital of the Province of the same name, with a population of 9,600, had been in Franco's possession since the beginning of the war. It is situated at the junction of two river valleys, by the confluence of the rivers Guadalaviar and Alfambra.* The terrain is very mountainous (Figure 2) and is so strong that the Insurgents considered it secure from frontal attacks, protected as it is by Muleton Hill and Mount Celadas in the north and the now famous Muela de Teruel (Teruel's Tooth) in the south; therefore, leaving only a weak garrison in this sector, the High Command proceeded to concentrate elsewhere for another offensive, either on the Guadalajara Front or along the valley of the Ebro. Apparently, the Government received information concerning these conditions, probably through spies, and secretly reinforced the "Levante Army" (Army of the East) with a number of International Brigades, which have rendered such gallant service in this war, particularly in hours of crises.

*The Alfambra flows into the Guadalaviar at Teruel; the latter turns sharply to the south and southeast, where it becomes known as the Guadalaviar or Turia and empties into the Mediterranean in the vicinity of Valencia.

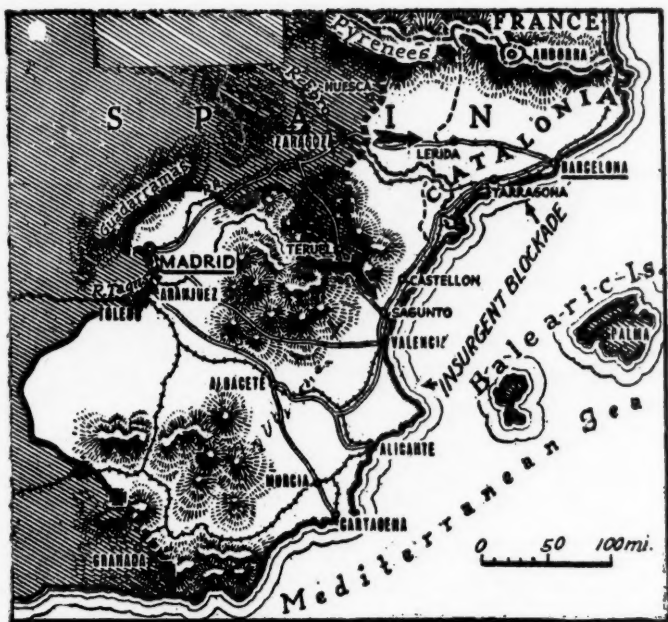


FIGURE 2—Terrain Around Teruel

At dawn, 15 December 1937, the Government offensive was launched, the infantry heavily supported by artillery, airplanes and tanks; the attacks were directed from the north, south and southwest, to pinch out the salient. Rapid progress was made on the first day; by the 16th, the Government had captured Concud (Figure 3) about three miles west of the city, thus gaining control of the only available route that could be used to reinforce the defenders. By the 18th, the city had been encircled and on the 21st, Government troops entered the town and isolated the weak Insurgent garrison, which, occupying a few buildings, offered resistance for a few days, but was finally forced to surrender a few days later.

Sharply stung, the Insurgent High Command made preparations at once to wipe out this defeat. A powerful army was concentrated without delay on 30 December and a vigorous counterattack was launched on that date, supported by artillery, tanks and over one hundred airplanes. Ex-



THE BATTLE OF TERUEL

FIGURE 3—Situation 15 December 1937-1 March 1938

tremely adverse weather prevailed, freezing temperatures, high winds and snow impeded the advance of the infantry, artillery and motor vehicles. This resulted in a deadlock lasting practically the entire month of January 1938, with attacks and counterattacks following each other in quick succession. On 6 February, General Fidel Davila, the conqueror of Bilbao, assumed personal command of the operations.

On 18 February, the Insurgents launched a vigorous counteroffensive directed by General Franco himself. The operations started with a feint near Montalban, about thirty-

eight miles to the north. The Government massed its forces in the Montalban sector to meet this threat. With lightning speed, Franco struck between the Montalban forces and Teruel, across the Alfambra River, east of Peralejos (Figure 3). Capturing Peralejos, the Insurgents seized the bridge over the Alfambra in vicinity of Villalba Baja and then swung sharply to the south along the Alfambra valley. (Figure 3.) Government defenses along this mountain valley crumbled under the fierce attack from the northeast. The village of Valdecebro and the dominating heights overlooking the city were captured in a desperate hand to hand combat and, finally, on 23 February, after fighting their way through into the city streets, overcoming machine guns, storming trenches and barricaded buildings, the Insurgents regained possession of Teruel. The situation was now the opposite to that which had taken place exactly two months before, when the Government troops, by a surprise offensive, hammered the Insurgent garrison into submission.

Teruel has been converted into a mass of shell-torn ruins and the two-month siege and the various battles have left little in the city worth fighting for. It possesses, nevertheless, great strategic importance as the pivot point of the extreme southernmost tip of the Aragon front.

While the land forces were storming Teruel, warships were bombarding Sagunto and Valencia (Figure 3) and planes were raiding Barcelona and Tarragona. The latest reports at this date (1 March) indicate that the Government forces have fallen back to Puerto Escadron (Figure 3), nine miles southeast of Teruel, to the strong defenses where the Government stopped the Insurgents early in the war and held them off for nearly a year and a half. They were reported making a desperate stand to keep Franco's forces from marching toward the Mediterranean.

COMMENTS

The Government obtained a strategic victory by the capture of Teruel last December and, regardless of its loss two months later, it served to delay the Insurgents' long advertised offensive. On the other hand, the successful Insurgents' counteroffensive has wiped out the Government's one and only great victory of the Civil War, it has strengthened

the Insurgents' morale and has given them again possession of the spearhead pointing at the Government's lines between Valencia and Madrid, besides giving them impetus for a decisive offensive that may culminate in a "march to victory."

Up to this time, the armies have been nearly evenly matched, and the battlefront has been too extensive to permit an overwhelming thrust by either side. Unless these conditions are remedied, it appears at present that stalemate may result. The Valencia Government seems to be encouraged by the possibility that Italy and Germany, in an agreement with Great Britain and France, may withdraw their support in favor of the Insurgent cause. The Government has repeatedly stated that should Mussolini and Hitler withdraw their support from Franco, his cause would collapse, or that if the British and French Governments forsook nonintervention and would open their factories to Government Spain, victory could be achieved. Either eventuality appears extremely unlikely. Germany and Italy have great stakes in Spain. They have risked and lost much armament and, Italy in particular, has lost many men, so their withdrawal is not to be considered seriously. It is far more likely that Italy in the near future may pour additional men and supplies into the fray to boost Franco's cause. The Valencia Government charges that superiority of arms, especially airplanes and artillery, supplied by Italy and Germany, paved the way for the Insurgent entry into Teruel.

A vigorous thrust toward the Mediterranean launched along the Sagunto highway, with recaptured Teruel as a pivot, would drive a wedge that would split Catalonia from the rest of Government Spain. Can Franco muster fresh reserves and secure the necessary foreign assistance to stage successfully his so-called "drive to the sea," and obtain thereby a decisive victory on the battlefield? *Quien sabe . . .*

THE SINO-JAPANESE WAR

(To 1 March 1938)

When the present undeclared conflict broke out at the Marco Polo Bridge 17 July 1937, Japanese staff officers predicted that it would be over by Christmas. After several months of fighting, the Chinese Army has been defeated and pursued hundreds of miles and the Japanese have spent

Christmas in the enemy's capital. The principal ports, railways and sources of revenue are in Japanese hands (Figure 1), yet Japan's Prime Minister speaks of the successful campaign as a prologue and warns his people that the real war is yet to begin. Japan is preparing for a war of long duration and the army and navy have demanded an appropriation of \$1,200,000,000, the highest in Japanese history.

It will be recalled that after a victorious drive from Shanghai, the Japanese forces captured Nanking, the capital of the Central Government on 13 December 1937. On 12 December, the *U.S.S. Panay* was sunk in the Yangtze River by Japanese aircraft while anchored 12 miles above Nanking. After two weeks of diplomatic tension, the United States accepted the Japanese note of apology for the attack, in which it was also promised that full reparation would be made and that specific measures would be taken to avoid further injury to American lives, property and interests. During December Japan set up a puppet Chinese Government at Peiping and the naval blockade was extended to Tsingtao.

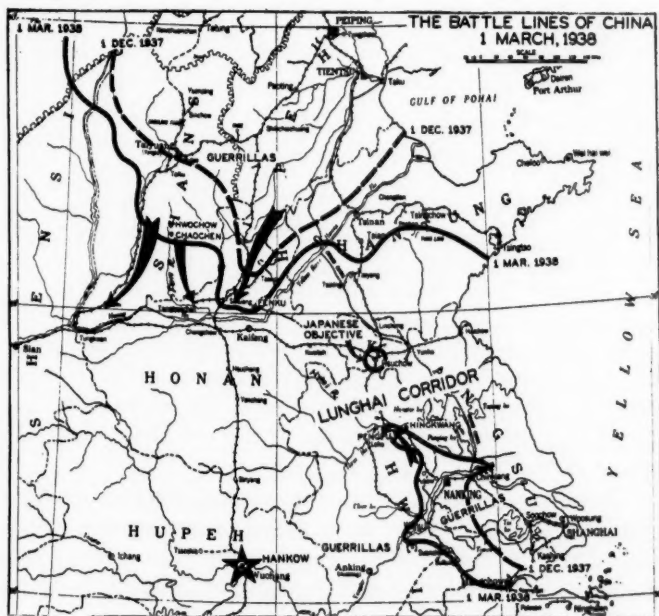


FIGURE 1—The Battle Lines of China, 1 March 1938

A glance at the map shows that between the territories conquered by Japan in North and Central China, lies a corridor about 190 miles wide, separating the Northern and Southern armies, which is still held by the Chinese. Its nerve center is Suchow, railway junction of lines running from north to south and from east to west. With the corridor removed, the Japanese would be able to resume rail service between conquered Peiping, Nanking and Shanghai. They would also be in a good position to thrust westward, along the Lunghai railway, into the heart of China. Conquest of the Lunghai corridor would complete the occupation of the five northern provinces and give Japan full command of the Chinese seacoast as far south as Shanghai.

The campaign started as a concentrated drive against Suchow from north and south. Suddenly dropping Suchow as their main objective, the Japanese armies split into several columns and began to move on points between that rail junction and Chenghow, another rail junction two hundred miles west. Capture of Suchow alone would have left the Chinese a line of retreat westward, so the purpose of these Japanese maneuvers is to cut off Chiang Kai-Shek's best troops from their source of supplies at Hankow. Reports indicate that the Japanese drive is spreading still farther to the west and is now aimed at the great bend of the Yellow River, where the Provinces of Shansi, Shensi and Honan are joined. Tungkwan, vital station on the Lunghai railway, gateway to Shansi and stronghold of the bitterly anti-Japanese Chinese Communists also lies directly south of the bend.

Judging from these maneuvers, it appears that the Japanese strategical plan now aims at crushing the Chinese armies in a vise-like movement from the north and south. The immediate Japanese objective seems to be to effect a union of their northern and southern armies at Kweiten, cut off railroad communications and force the Chinese to retreat inland.

Japanese forces, moving down from Suchow and up from the Yangtze valley have been hammering for weeks against this corridor. It is reported that they are opposed by about 400,000 Chinese troops, commanded personally by Chiang Kai-Shek.

Of the many Japanese thrusts seeking to cut the Lung-hai railway, backbone of the Chinese military position, the one in Shansi Province alone (northwest of Suchow) has been making real progress. They have succeeded in capturing Sinsiang and Fengku, ten miles north of the Yellow River and only sixteen miles from Kaifeng, capital of Honan Province. A Japanese attempt to cross the Yellow River is to be expected very soon.

Below Suchow, Japanese troops which captured Nanking, after a brief period of rest, resumed the march north in two main lines: The eastern column along the Grand Canal and the western column along the Tientsin—Pukow railroad. Bad weather and stubborn resistance slowed up the advance, but the Japanese have succeeded in capturing Pengpu. However, Chinese engineers blew up dikes and levees along the Hwai (misty) River and the flood bogged down the Japanese columns advancing northward from Nanking toward Suchow, leaving still a gap of over 150 miles between the Pengpu column and the Japanese in Southern Shantung. (Figure 1.)

In Central Anhwei Province, Chinese and Japanese are deadlocked in a series of bitter engagements with Japanese unable to make an appreciable advance north of the Hwai River.

Japanese columns have captured Wuhu, up the Yangtze from Nanking, but have been unable to advance because Chinese guerrilla bands have harassed them continually. Guerrillas have been active in the entire Hangchow—Nanking—Shanghai triangle, holding up supply shipments and forcing Japanese to use part of their forces to garrison communication lines.

Recall of three of the highest Japanese commanders was announced 23 February following reports of a sharp Japanese setback in the front north of Nanking. General Shunroku Hata, inspector of military education in Japan has stepped into the shoes of General Iwane Matsui as commander-in-chief of the Japanese forces in the Shanghai-Nanking area, and faces the task of reorganizing Japanese Central China forces to provide fresh impetus for drives against the vital Lung-hai corridor. General Matsui was recalled, according to reports because of the success of Chinese counterattacks in the Hwai River area, breaches of

discipline in the Japanese Army and friction with other nations. The other two high officers ordered back to Tokyo were: Lieutenant General Prince Yashuhiko Asaka, commander of Japanese expeditionary forces and Lieutenant General Heisuke Yanagawa, commander of the Hangchow landing force.

On 23 February, Tokyo was shocked by the news that Chinese planes, carrying the Far Eastern War to Japanese soil for the first time, had bombed Taihoku, capital of Formosa, and Shinchiku (Figure 2) in the first Chinese air raid, anywhere in the Japanese Empire. It was the first time since 1864, when a British-French-Dutch fleet bom-

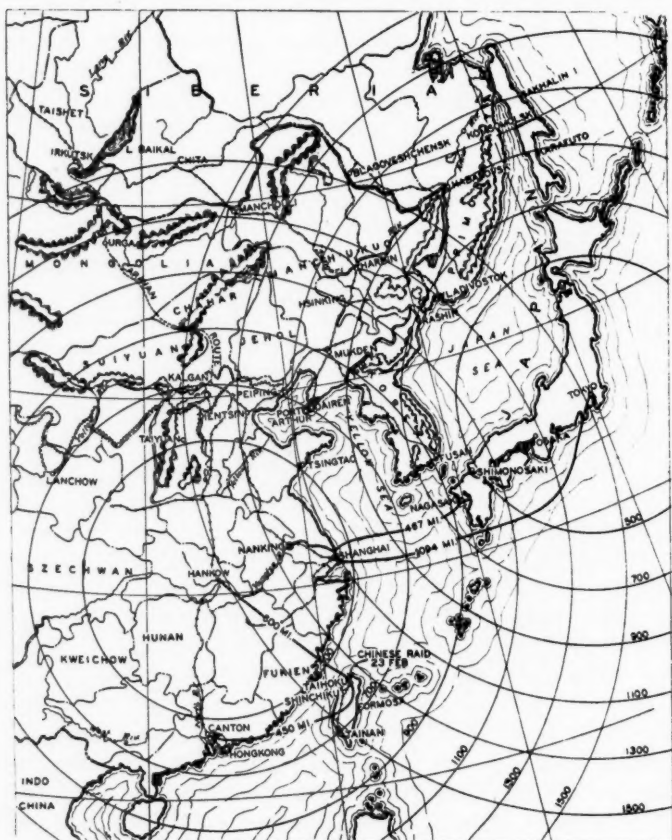


FIGURE 2—First Air Raid on Japan

barded Shimonoseki, that the territory of the Japanese Empire had been subject to hostile foreign bombardment.

Formosa lies approximately ninety miles east of the southeastern coast of China and has been used as an airplane and troop base for Japanese operations in South China. It was ceded to Japan by China in 1895 as a result of the Chinese-Japanese War, 1894-95. Reports as to the material damage caused by the spectacular raid are greatly contradictory; it has however, bolstered Chinese morale and also furnished evidence of the reorganization of the Chinese air force which now reached such a volume as to enable the Chinese Government again to undertake attacks. Japan has had overwhelming air superiority since the beginning of hostilities and for this reason many observers believe that the raiding planes came from the interior of China and stopped en route at an air field to refuel.

CAN JAPAN CONQUER CHINA?

Foreign Minister Koki Hirota, speaking before the Diet (Parliament) revealed that Japanese peace terms had been transmitted last December, through the German Ambassador at Tokyo, to the Chinese Nationalist Government. The basic points of this peace proposal were as follows:

(1) China to abandon her allegedly pro-Communist and Anti-Japanese and Anti-Manchukuo policy and collaborate with Japan and Manchukuo against Communism.

(2) Demilitarized zones under special regimes to be created in various regions of China.

(3) An economic agreement between Japan, China and Manchukuo. This contemplates an independent regime in Inner Mongolia and one in North China, distinct from the intended Yangtze Valley regime.

(4) China to pay an indemnity to Japan.

The Chinese Government rejected these proposals believing that translated into concrete terms, the acceptance of the above conditions would mean the abandonment by China of all claims to Manchuria, the granting of special rights to Japan in the exploitation of China's resources, with direct Japanese control of the strategic points and Japanese control of customs, thus making China a puppet state with the strings pulled by Tokyo.

The Chinese Plan.

The Chinese plan of defense is a "Moscow Campaign," a policy of "scorched earth," systematically laying waste all areas evacuated, leaving nothing that might be of value to the invader.

The Chinese armies are, according to press reports, re-organizing for a campaign of guerrilla warfare. All national and provincial troops are operating as guerrillas on the Shantung, Honan, Shansi, Chekiang and Anhwei Provinces. The four "golden rules" of guerrilla warfare that will be followed, as announced in Hankow on 11 January, are as follows:

- (1) Whenever the enemy is coming, we retreat.
- (2) Whenever the enemy is stationed anywhere, we harass him.
- (3) Whenever the enemy is evasive, we attack.
- (4) Whenever the enemy retreats, we kill.

These tactics do not aim at military victories, as operations are always of minor importance, such as blowing up a railway track, derailing a supply train in order to obtain arms, munitions and provisions, capturing and destroying army trucks, disarming and destroying isolated patrols and even punishing Chinese "traitors." The men do not wear uniforms and as soon as the objective is achieved these volunteers become once more, to all outward appearances, peaceful peasants. The comparatively thin lines of the Japanese, their long lines of communication and the intense Chinese patriotic feeling are favorable conditions for this type of warfare; furthermore, the deeper the Japanese thrust into the interior of China, the more this danger increases. It is said that Napoleon's experience of guerrilla warfare in Spain, Britain's experience in South Africa and Spain's problems in Cuba, were small-scale experiments compared with the war that is now being waged behind the Japanese lines in China.

The Japanese Plan

Japan's present plan is:

- (1) To set up a docile Chinese Government in the areas occupied by her armies.

(2) To confine the Nationalist Government and its forces to the Interior, stopping their revenues, and excluding them from the railways.

(3) To deprive them of contact with the outside world, except, possibly, from their weak link with Russia.

Japan expects that the Chinese masses will gradually become satisfied and accept Japanese leadership like Mongolia and Manchukuo have done.

The Chinese have suffered tremendous losses in man power, suffered crushing defeats, and lost a vast amount of territory, yet, they seem far from being vanquished and Japan is so overextended and there is so much maneuver room still left in China that the Japanese have been unable, so far, to fix them in position, with a view to annihilation. Observers believe that Japan has discovered that the Chinese are no longer the supine mass that they so easily defeated in 1894, but a determined people that yields perforce to Japanese supremacy in tanks, guns and airplanes, but who will not admit defeat and has resorted to guerrilla warfare behind the Japanese advance in order to avoid a disastrous defeat on the battlefield.

Last July Japan undervalued the degree of Nationalism achieved by the Chinese people; possibly now she underestimates the risks of guerrilla warfare. Japan's program is one of the most difficult ever undertaken by any nation, and will be made even more so if the Chinese masses continue adherence to their nationalism and refuse to submit to Japan's guidance.

Japan's problem has been compared to that of the early winner in a poker game—how to get out with all the chips while the slow-starting losers are settling down for an all night session.

THE COVER

By request of a great many of our subscribers we are publishing an explanation of the colored cover which first appeared on the December 1937 issue of the Quarterly. As long as it meets with the general approval of our supporters we will continue to use the same cover.

The water color drawing is one of several which illustrated the official publication: *The Uniform of the Army of the United States, Prepared and Executed by the Quartermaster General of the United States, Under Authority of the Secretary of War.*

The uniforms depicted are the full dress of the year 1888.

In the picture Lieutenant General Sheridan and some of his staff are represented. The horse trappings are those which were used by General Sheridan. From left to right the remaining figures in the picture represent: a cavalry officer; Lieutenant Colonel Batchelder, an officer of the General Staff Corps; an officer of light artillery; Colonel Michael Sheridan, Assistant Adjutant General. Michael Sheridan is a brother of General Sheridan.

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